PLA1300 control logic

(Version 2.0)

USER MANUAL

(Translated from the French original notice)

Revision 00

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DOCUMENT REVISIONS

Revision	Date	Written by	Revised by	Subject
00	06/2014	SLu	AP	DRAFT

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1 SAFETY WARNINGS

- It is the user's responsibility to inform operators of this equipment of the precautions for use and to ensure that they are respected.
- Any work on the control logic must be performed by personnel qualified in electronics. Any work that is unauthorized or performed on this product by an unqualified technician shall automatically and *ipso jure* void the manufacturer's warranty.
- Personnel must be warned of the electrical risks of negligent handling.
- Any internal element that may be live must be handled with care.
- The equipment is configured in ***minimal risk*** mode for users. Any modification of the parameters must be performed with full knowledge of the risks by qualified personnel and in no way incurs the liability of Automatic Systems.

1.1 Handling static-sensitive devices

Pay particular attention when handling static-sensitive devices.

Static electricity can damage electronic components and the system. To avoid risk of deterioration, keep static-sensitive devices in their antistatic packaging until installation.

To reduce the risk of electrostatic discharge, take the following precautions:

- Limit your movements. Movement contributes to generating static electricity around you.
- Use an antistatic device such as an antistatic carpet or wrist strap.
- Handle the device with care, holding it by the edges or frame.
- Do not touch welded joints, pins or open printed circuit boards.
- Do not leave the device within reach of persons likely to handle it and potentially cause its deterioration.
- With the device still in its antistatic packaging, touch it to an unpainted metal surface for at least two seconds. (This eliminates static electricity from the packaging and your body.)
- Remove the device from its packaging and install it immediately without setting it down. If you must set it down, place it on its antistatic packaging. (If it is a board, set it down with its components facing upward.) Do not place the device on a metal table.
- Take additional care in cold weather because heating reduces humidity and increases the accumulation of static electricity.

If you do not have an antistatic wrist strap, touch an unpainted surface of the equipment while handling the electronic device.

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2 INTRODUCTION

Users can configure their equipment based on their specific needs through the programmable logic of PLA1300:

- Management of obstacle commands (open, close, stop) sent through buttons, radio control, card reader(s) or any other wired control devices.
- Management of sensors such as loop detectors and safety photocells.
- Programming of automatic closure using various time delays (e.g., no passage, after passage, inversion).
- Deallocation of contacts to activate devices such as a revolving light or a light, or to indicate the status of the obstacle, for example.
- Management of available equipment options (arm lighting, revolving light, traffic light, locking with the tip support, swing-off, pneumatic safety sensor under the arm, control via protocol Modbus).
- Extension of the number of logic inputs and outputs via optional expansion board PLA1301.

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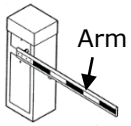
3 DESCRIPTION

3.1 Terminology

RB:	Rising barrier
Lock CL:	Locked closed
Lock OP:	Locked open
CMD:	Command
PS:	Presence sensor (generic term used for detection loops and safety photocells)
DI:	Digital input
DO:	Digital output
ELV:	Electro lockable (tip support)
I/O:	Input/Output
LS:	Limit switch
LSC:	Limit switch closed
LSH:	Limit switch high
LSL:	Limit switch low
LSO:	Limit switch open
CL:	Closure
OOS:	Out of service
HMI:	Human-machine interface
CRA:	Card reader in direction A
CRB:	Card reader in direction B
NC:	Normally closed (contact)
NO:	Normally open (contact)
Obstacle:	Physical element preventing passage (the arm in the case of a barrier)
OP:	Opening
VFD:	Variable frequency drive (also called frequency inverter)
MVT:	Movement
TOR:	On-off (mode or device)



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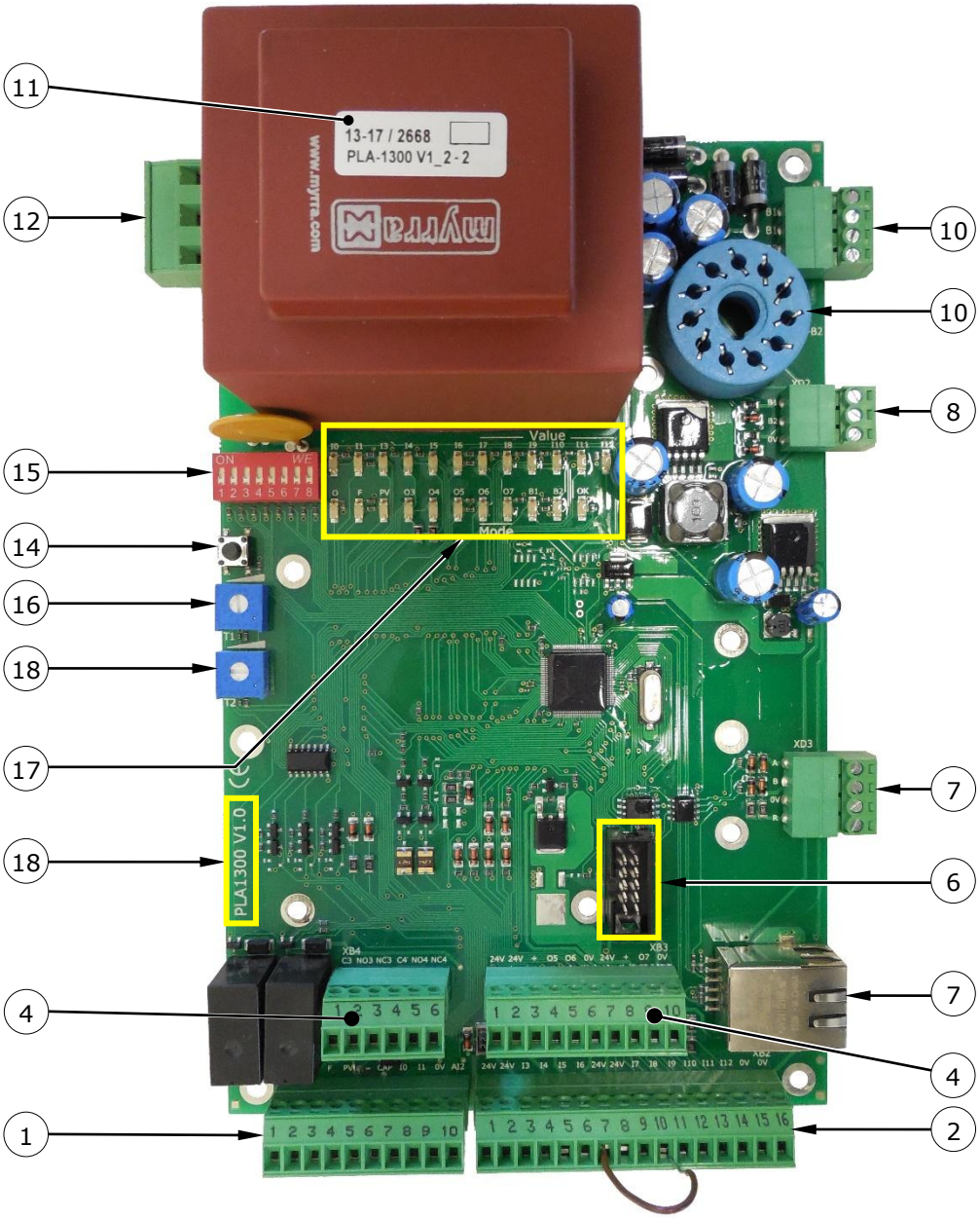
4 BOARD PLA1300

4.1 Component location



Item	Description
1	Connector XB1
2	Connector XB2
3	Connector XB3
4	Connector XB4
5	Connector XRJ45 – Ethernet link
6	Connector XSUPP – serial link (for expansion board PLA1301)
7	Connector XD3 – serial link to control a VFD
8	Connector XD2
9	Presence detector connector

Item	Description
10	Connector XD1 (loop connection)
11	***Serial number*** and ***software release*** label
12	Connector XG1 – board power supply 230 VAC
13	DIP switches
14	Push-button
15	Control potentiometer of delay T1
16	Control potentiometer of delay T2
17	Input, output, loop and HMI status LEDs
18	Board model and version

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4.2 Information LEDs

	LED	COLOR	FUNCTION
INPUTS	I0	Red	Activity status digital input 0
	I1	Red	Activity status digital input 1
	I3	Red	Activity status digital input 3
	I4	Red	Activity status digital input 4
	I5	Red	Activity status digital input 5
	I6	Red	Activity status digital input 6
	I7	Red	Activity status digital input 7
			HMI ⇨ Chapter 7
	I8	Red	Activity status digital input 8
			HMI ⇨ Chapter 7
	I9	Red	Activity status digital input 9
			HMI ⇨ Chapter 7
	I10	Red	Activity status digital input 10
			HMI ⇨ Chapter 7
	I11	Red	Activity status digital input 11
			HMI ⇨ Chapter 7
	I12	Red	Activity status digital input 12
			HMI ⇨ Chapter 7
OUTPUTS	O	Yellow	Activity status opening (VFD)
	F	Yellow	Activity status closure (VFD)
	PV	Yellow	Activity status slow speed (VFD)
	O3	Yellow	Activity status digital output 3
	O4	Yellow	Activity status digital output 4
	O5	Yellow	Activity status digital output 5
	O6	Yellow	Activity status digital output 6
			HMI ⇨ Chapter 7
	O7	Yellow	Activity status digital output 7
			HMI ⇨ Chapter 7
	B1	Red	Activity status loop 1
	B2	Red	Activity status loop 2
	OK	Green	Lit when board is operational
			HMI ⇨ Chapter 7

LEDs O, F and PV display the activity status of the VFD when it is controlled in on-off (TOR) mode.

They can be assigned to other functions when the VFD is controlled over a serial link.

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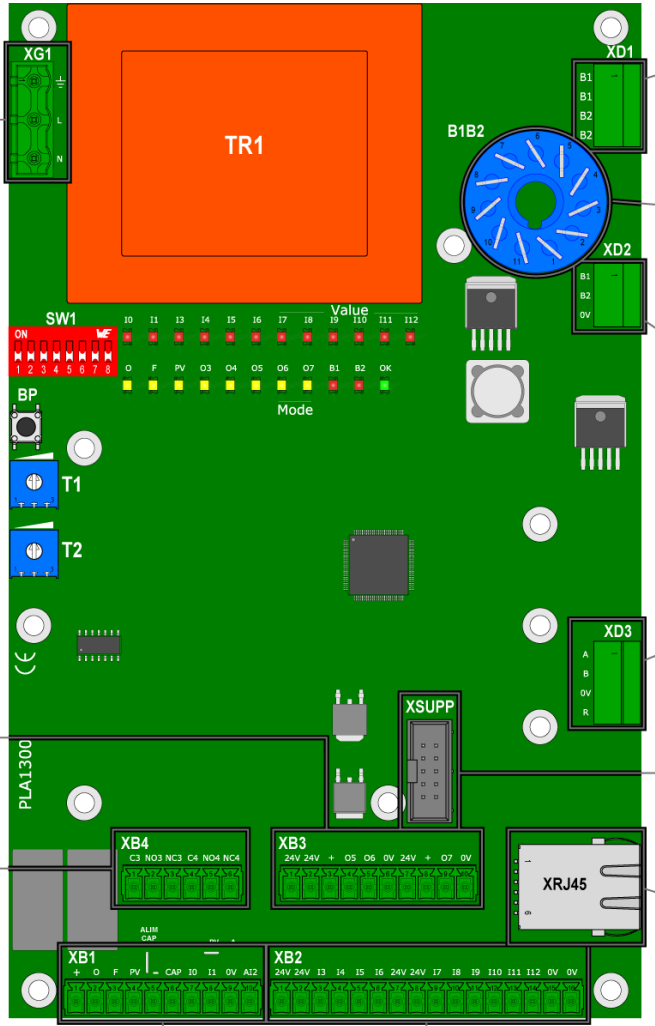
4.3 Connector assignment



XG1
Power supply connector.
(230V single phase 50/60Hz + ground)

XD1
To connect safety loops.

B1B2
To connect single or double presence detector.
(Management of safety loops)

XD2
Used by Automatic Systems for specific things.

XD3
RS485 connector to drive a Frequency Driver by serial connection.

XSUPP
Serial connector for coupling the PLA1301 extension card (Option) or programming the PLA1300.

XRJ45
To connect the PLA1300 card to a computer or a network.

XB3
Terminals 0VDC, 24VDC, + and output O5, O6 and O7..

XB4
Contacts NO and NC of output O3 and O4.

XB1
Open, Close, Slow speed command for the frequency converter + Input I0, I1 and I2.

XB2
Terminals 0 VDC, 24VDC and Input I3 to I12.

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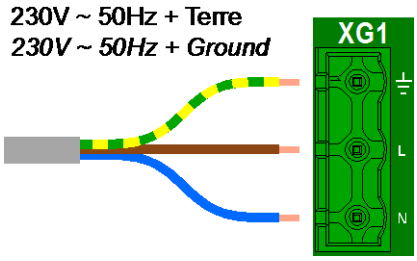
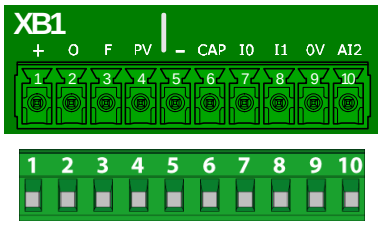
4.4 Characteristics of connector terminals

4.4.1 Connector XG1



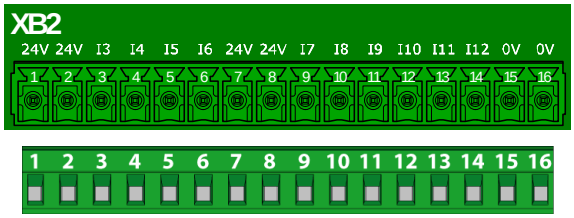
⏚ = Ground
L = Line
N = Neutral

4.4.2 Connector XB1[1]



+	=	Potential free terminal[2]
O	=	Opening command (⇨ VFD)
F	=	Closing command (⇨ VFD)
PV	=	Slow speed command (⇨ VFD)
-	=	Ground transistor
CAP[3]	=	24 VDC power supply of position sensors
I0	=	Digital input 0
I1	=	Digital input 1
0V	=	0 VDC
AI2	=	Analog input 0–10 V[4]

4.4.3 Connector XB2[5]



24 VDC polarized inputs

24V	=	+24 VDC
24V	=	+24 VDC
I3	=	Digital input 3
I4	=	Digital input 4
I5	=	Digital input 5
I6	=	Digital input 6
24V	=	+24 VDC
24V	=	+24 VDC
I7	=	Digital input 7
I8	=	Digital input 8
I9	=	Digital input 9
I10	=	Digital input 10
I11	=	Digital input 11
I12	=	Digital input 12
0V	=	0 VDC
0V	=	0 VDC

[1] Connector used to control a VFD in TOR mode. ⇨ ***For an example***, see the diagram for type ***C220*** in Chapter 10.

[2] Dedicated to the adjacent transistor outputs to power them via the 24 VDC of the board or of another power supply.

[3] Or 5 V according to the ***ALIM CAP*** shunt.

[4] This input can also be used in 24 VDC TOR mode.

[5] Inputs I7 to I12 can be both PNP and NPN. This means they can be grouped or with a 24 VDC, or a 12 VDC, or a 0 V of the board (or an external power supply if the 0Vs are put together).
Note: This is why there are 2 0V terminals on this connector.

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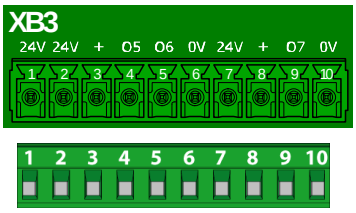
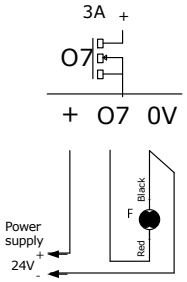
4.4.4 Connector XB3



24 VDC polarized outputs

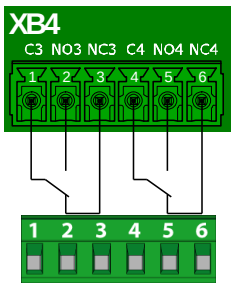
24V	=	+24 VDC
24V	=	+24 VDC
+	=	Transistor polarity
O5[6]	=	Transistorized output limited to 150 mA
O6[6]	=	Transistorized output limited to 150 mA
0V	=	0 V or ground transistor
24V	=	+24 VDC
+	=	Transistor polarity
O7[6]	=	Transistorized output limited to 2.5 A
0V	=	0 V or ground transistor

Connection example for transistorized outputs:



Flashing light(s) or revolving light

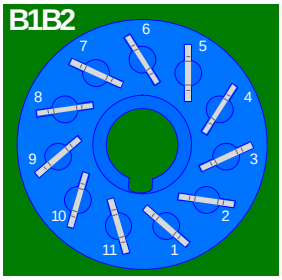
4.4.5 Connector XB4



Dry contact outputs (limited to 3 A at 230 V)

C3	=	} Relay output with inverter contact 230 V, 3 A
NO3	=	
NC3	=	
C4	=	} Relay output with inverter contact 230 V, 3 A
NO4	=	
NC4	=	

4.4.6 Connector B1B2



1	=	0 VDC
2	=	+24 VDC terminal block (0.75 A max)
3	=	Loop 1 (from XD1)
4	=	Loop 1 (from XD1)
5	=	Loop 2 (from XD1)
6	=	Loop 2 (from XD1)
7	=	
8	=	} Loop 1 relay contacts
9	=	-----
10	=	
11	=	} Loop 2 relay contacts

Automatic Systems specific pinout

[6] This output can be powered by an external source (hence the + and - terminals).

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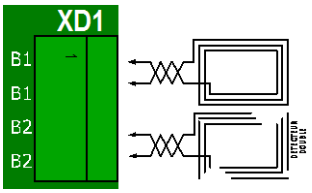
4.4.7 Connector XD1



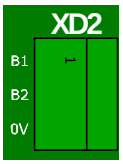
B1 = B1 = } Detection loop 1 connection terminal

B2 = B2 = } Detection loop 2 connection terminal

If **only one loop** is connected, **a single presence detector** must be used.
Using a double presence detector can cause malfunctions.

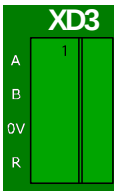
A double presence detector is required if a second loop is connected.

4.4.8 Connector XD2



Connector reserved for Automatic Systems use.

4.4.9 Connector XD3[7]

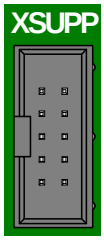


A = B = } 2-wire, ***half-duplex*** RS485 transmission

0V = 0 V (ground)

R = Potential resistance of the end of line load

4.4.10 Connector XSUPP[8]



Serial connector for expansion board PLA1301.

Can be used to program the OS of the board.

[7] This connector can also be used to control a VFD via an RS485 link (diagram for type **D** ⇨ Chapter 10).

[8] This connector can also be used to program the OS of the board in the factory and for troubleshooting.

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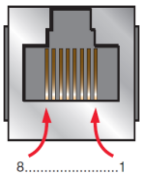
4.4.11 Connector XRJ45



1 = TX+
2 = TX-
3 = RX+
4 = *Not used 75 Ω*
5 = *Not used 75 Ω*
6 = RX-
7 = *Not used 75 Ω*
8 = *Not used 75 Ω*

4.5 DIP switches

The 8 DIP switches (or microswitches) of programmable board PLA1300 are used to enable a series of functions—based on the active program—that can be used to quickly modify the control logic.

Before modifying the position of a DIP switch, it is important to refer to the diagrams provided with the equipment.

See wiring diagram examples in Chapter 10 .

Because priority is given to web pages, and based on the selections made on these pages, the modification of the position of a DIP switch might not change the behavior of the device.

4.6 Adjustment of hardware time delays (potentiometers)

The two potentiometers included in the control logic of board PLA1300 can be used to adjust the following time delays:

	Max values	**Default** values	
T1	60 s	30 s	Closure time delay when no passage is detected
T2	10 s	2 s	Closure time delay after passage

- Turn the potentiometer clockwise to increase the value of the delay.
- Turn the potentiometer counterclockwise to decrease the value of the delay.

It is possible to set other time delays via the web maintenance interface.

- Time delay assignment depends on the active program.
- Max values for T1 and T2 can be modified via the web pages.

4.7 Hardware shunt function

4.7.1 Shunt ALIM CAP

When the shunt is full, terminal CAP sends 24 VDC to power the inductive sensors.

For analog sensors, the power supplied should be 5 VDC. Shunt ALIM CAP must therefore be cut.

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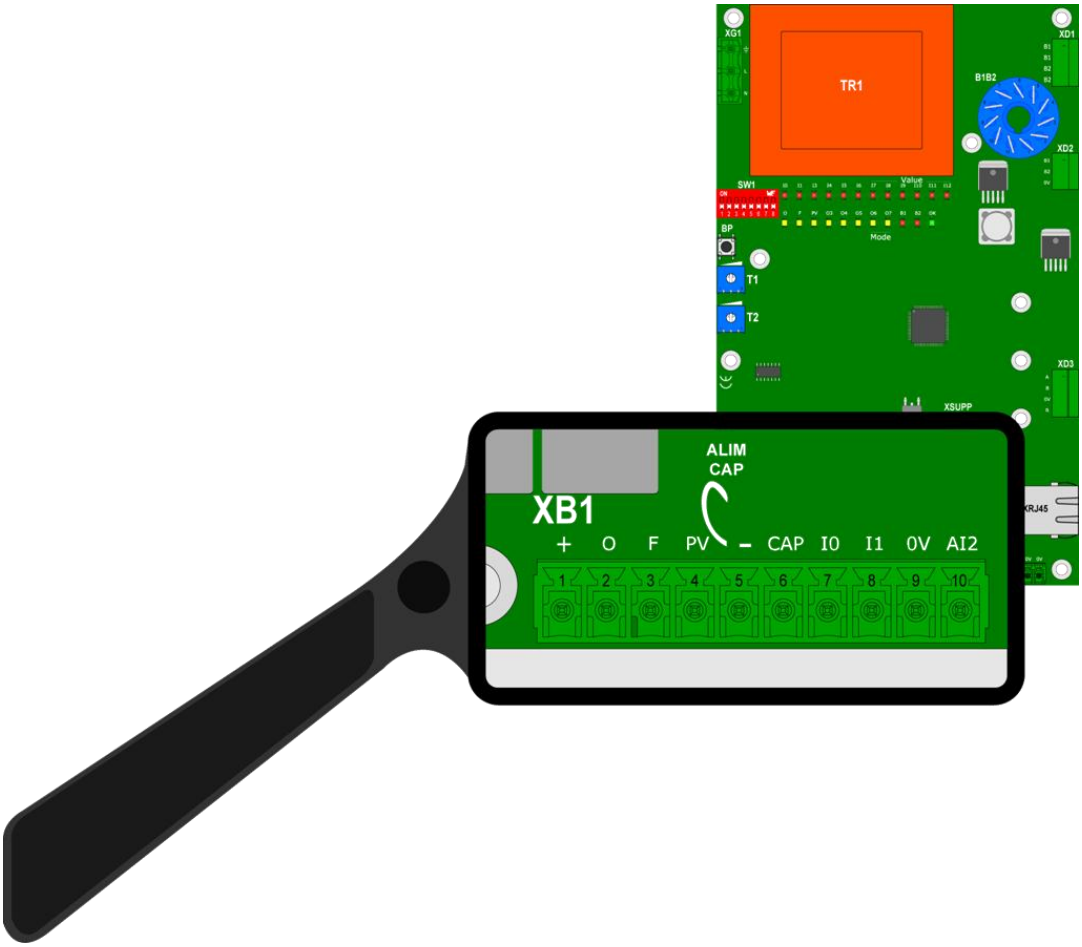
Connecting an analog sensor without cutting shunt ***ALIM CAP*** beforehand will lead to sensor deterioration.



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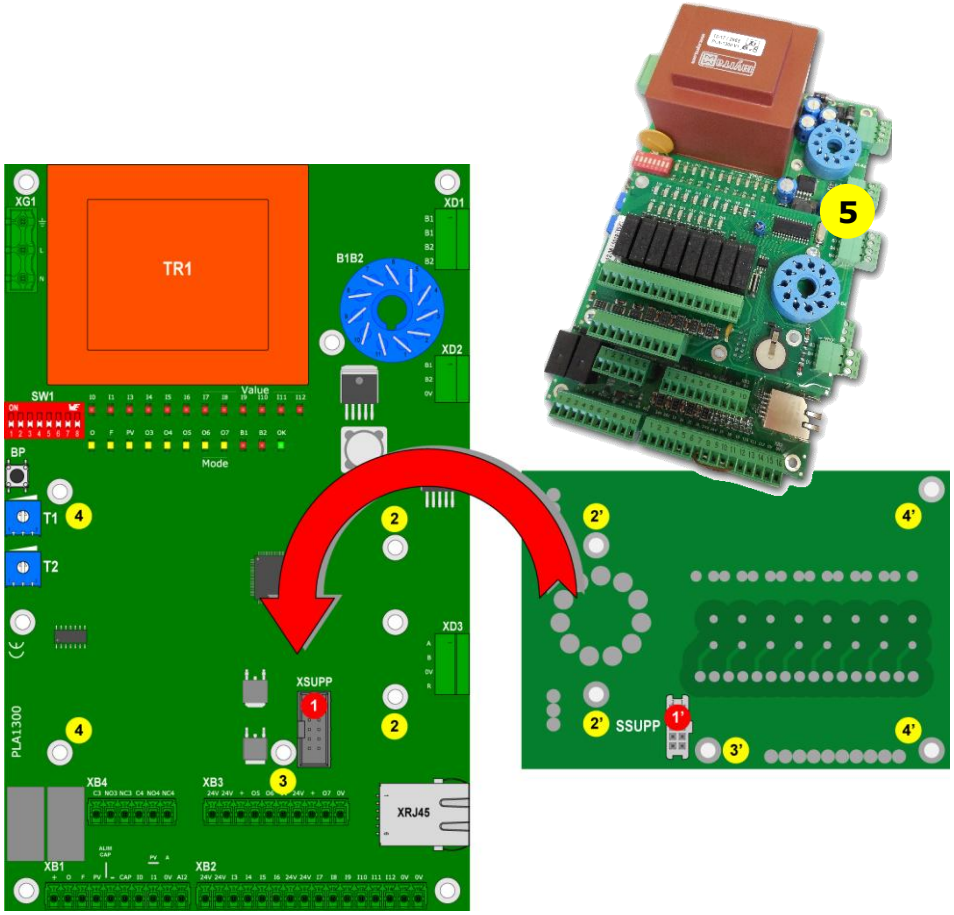
5 EXPANSION BOARD PLA1301 (OPTIONAL)

5.1 Installation of board PLA1301



Expansion board PLA1301 is shown bottom side up. You will need to turn it to assemble it.

To install expansion board PLA1301 on board PLA1300, connector SSUPP 1' located on the back of board PLA1301 must be plugged into connector XSUPP 1 of board PLA1300.

This connector is keyed and can therefore be inserted only in one direction.

Match the following attachment points: 2 with 2', 3 with 3' and 4 with 4'.

Insert the board until you hear a ***click*** that tells you the board is in place (on the synthetic posts). Secure it with the synthetic washer and nut provided for that purpose.

⇨ Image 5 shows the final result.

THE BOARDS MUST BE ASSEMBLED WHEN THEY ARE DEENERGIZED.

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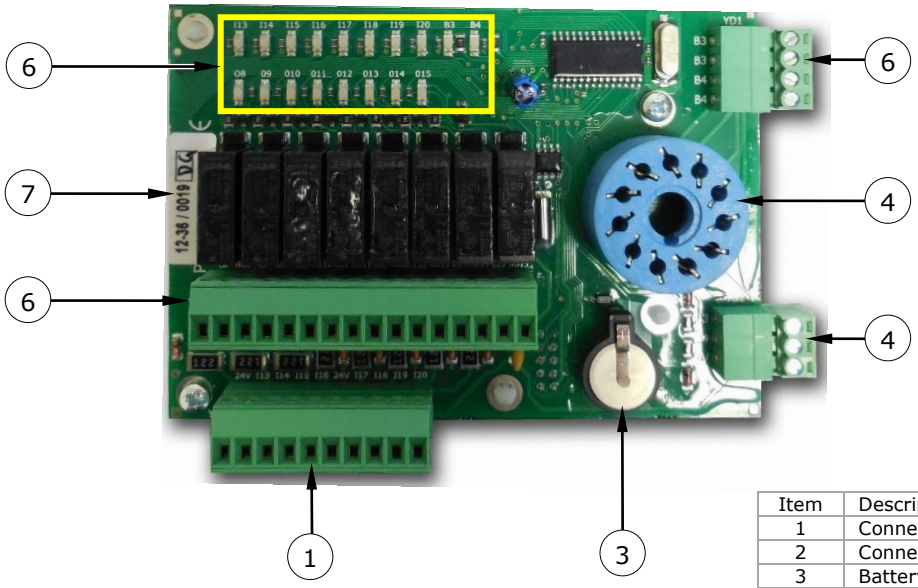
5.2 Component location



Item	Description
1	Connector YB1 [8 inputs (I13 → I20)]
2	Connector YB2 [8 outputs [(NO8 → NO15)]
3	Battery BR1225 (CR1225)
4	Connector YD2
5	Presence detector connector
6	Connector YD1
7	Input and output status LEDs
8	Serial number and software release label

5.3 Information LEDs

	LED	COLOR	FUNCTION
Inputs	I13	Red	Activity status digital input 13
	I14	Red	Activity status digital input 14
	I15	Red	Activity status digital input 15
	I16	Red	Activity status digital input 16
	I17	Red	Activity status digital input 17
	I18	Red	Activity status digital input 18
	I19	Red	Activity status digital input 19
	I20	Red	Activity status digital input 20
	B3	Red	Activity status loop B3
	B4	Red	Activity status loop B4
Outputs	O8	Yellow	Activity status digital output 11
	O9	Yellow	Activity status digital output 9
	O10	Yellow	Activity status digital output 10
	O11	Yellow	Activity status digital output 11
	O12	Yellow	Activity status digital output 12
	O13	Yellow	Activity status digital output 13
	O14	Yellow	Activity status digital output 14
	O15	Yellow	Activity status digital output 15

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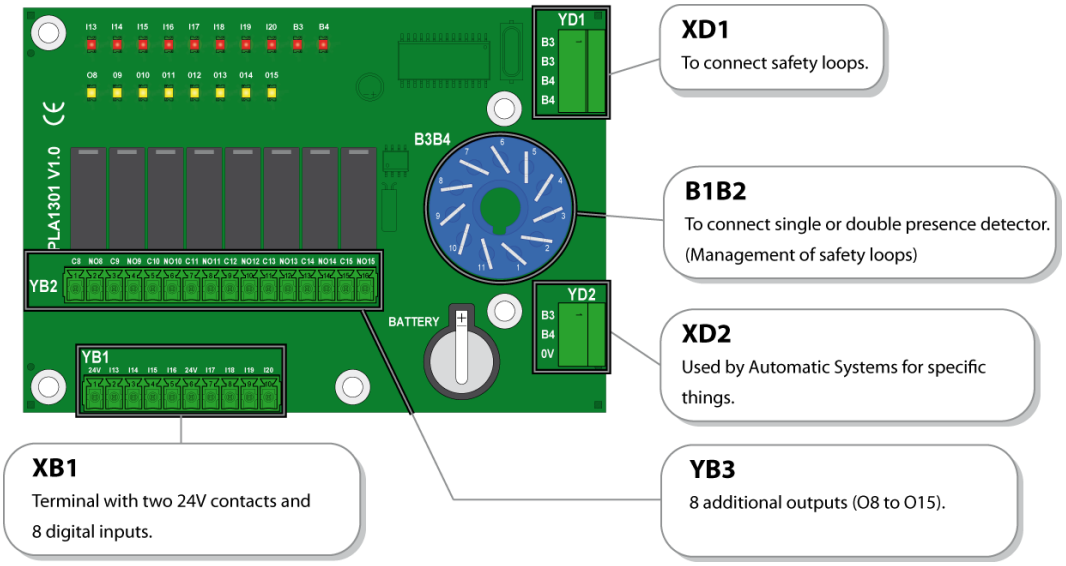
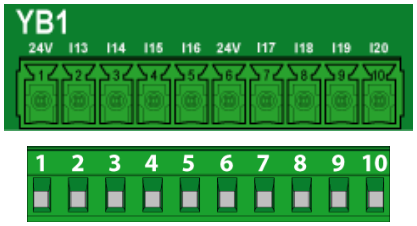
5.4 Connector assignment



5.5 Characteristics of connector terminals

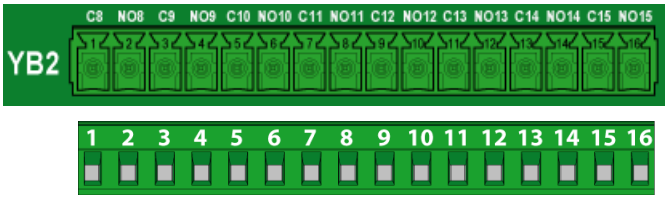
5.5.1 Connector YB1



24 VDC
polarized inputs

24V	=	+24 VDC
I13	=	Digital input 13
I14	=	Digital input 14
I15	=	Digital input 15
I16	=	Digital input 16
24V	=	+24 VDC
I17	=	Digital input 17
I18	=	Digital input 18
I19	=	Digital input 19
I20	=	Digital input 20

5.5.2 Connector YB2



Dry contact outputs
(limited to 3 A at 230 V)

C8	=	Common output 8
NO8	=	NO output 8
C9	=	Common output 9
NO9	=	NO output 9
C10	=	Common output 10
NO10	=	NO output 10
C11	=	Common output 11
NO11	=	NO output 11
C12	=	Common output 12
NO12	=	NO output 12
C13	=	Common output 13
NO13	=	NO output 13
C14	=	Common output 14
NO14	=	NO output 14
C15	=	Common output 15
NO15	=	NO output 15

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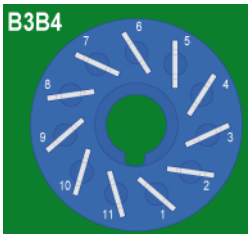
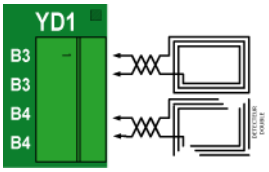
5.5.3 Connector B3B4



1	=	0 VDC
2	=	+24 VDC terminal block (0.75 A max)
3	=	Loop 1 (from YD1)
4	=	Loop 1 (from YD1)
5	=	Loop 2 (from YD1)
6	=	Loop 2 (from YD1)
7	=	} Loop 1 relay contacts
8	=	
9	=	-----
10	=	} Loop 2 relay contacts
11	=	

Automatic Systems specific pinout

5.5.4 Connector YD1

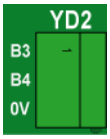


B3	=	Detection loop 3 connection terminal
B3	=	Detection loop 3 connection terminal
B4	=	Detection loop 4 connection terminal
B4	=	Detection loop 4 connection terminal

If **only one loop** is connected, **a single presence detector** must be used.
Using a double presence detector can cause malfunctions.

A double presence detector is required if a second loop is connected.

5.5.5 Connector YD2



Connector reserved for Automatic Systems use.

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RECAP: PARAMETERS OF THE LOGIC

5.6 Program 01 (Perimeter)

General parameters (depend on the program release).
Refer to the diagrams provided with the equipment.

Name : AS
Active program : 1

Release informations

Logic board :	V2_0.2
Release program :	V7
I/O extension logic board :	V1.1

PRODUCT DEFINITION

User program :	P01
Frequency inverter program :	TOR frequency inverter / Serial frequency inverter
Shimming :	No / Yes
Model of position sensor :	TOR sensor / Analog sensor

DELAYS

T1 :	60.0	s	Reclosure if no passage (potentiometer max value)
T2 :	10.0	s	Reclosure if passage (potentiometer max value)
T3 :	2.0	s	End of movement
T4 :	0.0	s	Delay before opening
T5 :	0.0	s	Delay before closure
T6 :	0.0	s	Preservation after movement (specifics outputs)
T7 :	0.5	s	Flashing light : Faded time
T8 :	0.5	s	Flashing light : Lit time
T9 :	0.0	s	Preservation for opening loop
T10 :	2.0	s	Delay (o) for internal lock. Do not change
T11 :	2.00	s	Delay (c) for internal lock. Do not change
T12 :	15.00	s	Delay before sending "Default info"

INPUTS SELECTING

I0:	*High position limit switch	I7:	*Closure (Manu mode)
I1:	*Low position limit switch	I8:	*Safety with NC contact
AI2:	-----	I9:	*Opening (Auto mode)
I3:	*Swing-off sensor / internal lock	I10:	*Opened lock
I4:	*Pedestrian safety (Which do not close)	I11:	*Inhibition of the opening loop
I5:	*Auto / Manu	I12:	*Closed lock
I6:	*Opening (Manu mode)		

WITH EXTENSION LOGIC BOARD

I13:	*Opening (secondary reader)	I17:	-----
I14:	*External validation	I18:	-----
I15:	*Remote control switch	I19:	-----
I16:	-----	I20:	-----

OUTPUTS SELECTING

O0:	*Opening order (freq. inverter)	O4:	*"Safety under boom" information / Red/
O1:	*Closure order (freq. inverter)	O5:	*High position / Opening of the slave bar
O2:	*Low speed order (freq. inverter)	O6:	*Low position / closure of the slave barrie
O3:	*Order for tip / internal lock	O7:	*Flashing light(s) / Revolving light

WITH EXTENSION LOGIC BOARD

O8:	*Loop "B1" information	O12:	*Default information
O9:	*Loop "B2" information	O13:	*Siren
O10:	*Loop "B3" information	O14:	*High position information
O11:	*Loop "B4" information	O15:	*Low position information

PREDEFINED FUNCTIONS

1: The delay if no passage (T1)
- (•) Closes the barrier
- ( ) Doesn't close the barrier

2: Emergency stop
- (•) without
- ( ) with

3: Opening
- (•) Auto-maintained
- ( ) with deadman control

4: During the closure, the safety
- (•) Opens the barrier
- ( ) Doesn't open the barrier

5: (card)reader 1
- (•) without validation
- ( ) with validation (through the validation loop 2)

6: The pedestrian safety gives out a contact
- (•) NO
- ( ) NC

7: Remote control switch
- (•) Disabled
- ( ) Enabled (cancel any other operation)

8: Priority blocking
- (•) Opening
- ( ) Closure and without safety

9: Functioning of the revolving light (SW5=OFF)
- (•) During the movement
- ( ) During the movement and in the closed position

10: Functioning of the revolving light (SW5=OFF)
- (•) During the movement
- ( ) During the movement and in the open position

11: ***
- (•)
- ( )

12: ***
- (•)
- ( )

13: ***
- (•)
- ( )

14: Directional management (via software)
- (•) Activation crossing the 2nd loop
- ( ) Activation crossing the 1st loop

15: Internal lock position, if no power supply
- (•) Opened
- ( ) Closed

16: Internal lock functioning if no power supply
** Priority **
- (•) Locked for both position
- ( ) Locked when opened and unlocked when closed (specific mounting)

LOOPS

B1:	*B1 : Look at SW3 on the electrical diagr	B2:	*B2 : Look at SW3 on the electrical diagr

WITH EXTENSION LOGIC BOARD

B3:	*Loop for validation 1	B4:	-----

DIP switches

SW1	ON	Fermeture auto-maintenue
	OFF	Fermeture "pas à pas"
SW2	ON	Entrée I3 dédiée au capteur de verrouillage interne
	OFF	Entrée I3 dédiée au capteur de dégondage (voir FP2 pour fonctionnement spécifique à l'arrêt)
SW3	ON	Boucle B1 en "ouverture automatique" et B2 en "sécurité sous lisse"
	OFF	Boucles B1 & B2 en mode "sécurité sous lisse"
SW4	ON	La sortie O4 pilote un feu rouge / vert
	OFF	La sortie O4 envoie une information si une sécurité est active
SW5	ON	La sortie O7 est affectée à un éclairage continu (gyrophare par exemple)
	OFF	La sortie O7 est affectée à un éclairage clignotant
SW6	ON	La sortie O7 est active pendant le mouvement et lorsque la lisse est en position basse
	OFF	La sortie O7 est active pendant le mouvement et inactive lorsque la lisse est en position basse
SW7	ON	La sortie O7 est active pendant le mouvement et lorsque la lisse est en position haute
	OFF	La sortie O7 est active pendant le mouvement et inactive lorsque la lisse est en position
SW8	ON	Pilotage barrière esclave : la sortie O5 donne un ordre d'ouverture et O6 un ordre de fermeture
	OFF	Info de position haute en O5 et position basse en O6

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5.7 Program 02 (Highway)

General parameters (depend on the program release).
Refer to the diagrams provided with the equipment.

Name : **AS**
Active program : **2**

Release informations

Logic board :	**V2_0.2**
Release program :	**V6**
I/O extension logic board :	**V1.1**

DELAYS

User program :	P02
Frequency inverter program :	(•) TOR frequency inverter / ( ) Serial frequency inverter
Shimming :	(•) No / ( ) Yes
Model of position sensor :	(•) TOR sensor / ( ) Analog sensor

INPUTS SELECTING

T1 :	60.0	s	Reclosure if no passage (potentiometer max value)
T2 :	10.0	s	Reclosure if passage (potentiometer max value)
T3 :	2.0	s	End of movement
T4 :	0.0	s	-----
T5 :	0.0	s	-----
T6 :	0.0	s	Preservation after movement (specifics outputs)
T7 :	0.5	s	Flashing light : Faded time
T8 :	0.5	s	Flashing light : Lit time
T9 :	0.0	s	-----
T10 :	0.0	s	-----
T11 :	0.00	s	Before opening in case of swing-off
T12 :	15.00	s	Delay before sending "Default info"

OUTPUTS SELECTING

I0:	*High position limit switch	I7:	*Closure
I1:	*Low position limit switch	I8:	*Safety with NC contact
AI2:	-----	I9:	*Middle swing-on sensor
I3:	-----	I10:	*Opened lock
I4:	*Safety with NO contact	I11:	*Auto/Manu
I5:	*Swing-off sensor	I12:	*Closed lock
I6:	*Opening		

WITH EXTENSION LOGIC BOARD

I13:	-----	I17:	-----
I14:	-----	I18:	-----
I15:	-----	I19:	-----
I16:	-----	I20:	-----

PREDEFINED FUNCTIONS

O0:	*Opening order (freq. inverter)	O4:	*Low position information
O1:	*Closure order (freq. inverter)	O5:	*"Swing-off sensor" information
O2:	*Low speed order (freq. inverter)	O6:	*Default information / Shimming
O3:	*High position information	O7:	*Flashing light(s) / Revolving light

WITH EXTENSION LOGIC BOARD

O8:	-----	O12:	-----
O9:	-----	O13:	-----
O10:	-----	O14:	-----
O11:	-----	O15:	-----

LOOPS

1: The delay if no passage (T1)	(•) Closes the barrier / ( ) Doesn't close the barrier	**9:** ***	(•) / ( )
2: ***	(•) / ( )	**10:** ***	(•) / ( )
3: Opening	(•) Auto-maintained / ( ) with deadman control	**11:** ***	(•) / ( )
4: During the closure, the safety	(•) Opens the barrier / ( ) Doesn't open the barrier	**12:** ***	(•) / ( )
5: ***	(•) / ( )	**13:** ***	(•) / ( )
6: ***	(•) / ( )	**14:** ***	(•) / ( )
7: ***	(•) / ( )	**15:** ***	(•) / ( )
8: ***	(•) / ( )	**16:** ***	(•) / ( )

Save | Default values

LOOPS

B1:	*Security under boom	B2:	-----

WITH EXTENSION LOGIC BOARD

B3:	-----	B4:	-----

DIP switches

SW1	ON	Closing auto-maintained
	OFF	Closing "step by step"
SW2	ON	Open order NC at I6 (please add a shunt between I7 and 24V)
	OFF	Open order NO at I6
SW3	ON	Output O6 give an information if security is active (Inputs I4, I8 and loop B1)
	OFF	Output O6 give a "default" information
SW4	ON	The information given by the swing-off sensor at I5 doesn't open the barrier
	OFF	The information given by the swing-off sensor at I5 opens the barrier
SW5	ON	Reclosing at rehinging after new cycle
	OFF	Reclosing at rehinging (if order to close continuous)
SW6	ON	The O7 output is dedicated to a continuous light (revolving light for exemple)
	OFF	The O7 output is dedicated to a flashing lights
SW7	ON	The O7 output is active during the movement and when the barrier is opened
	OFF	The O7 output is not active when the barrier is opened
SW8	ON	The O7 output is active during the movement and when the barrier closed
	OFF	The O7 output is not active when the barrier closed

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5.8 Program 05 (Parking lot)

General parameters (depend on the program release).
Refer to the diagrams provided with the equipment.

Name : AS
Active program : 5

Release informations

Logic board :	V2_0.2
Release program :	V5
I/O extension logic board :	V1.1

PRODUCT DEFINITION

User program :	P05
Frequency inverter program :	(•) TOR frequency inverter ( ) Serial frequency inverter
Shimming :	(•) No ( ) Yes
Model of position sensor :	(•) TOR sensor ( ) Analog sensor

DELAYS

T1 :	100.0	s	Reclosure if no passage (potentiometer max value)
T2 :	10.0	s	Reclosure if passage (potentiometer max value)
T3 :	2.0	s	End of movement
T4 :	0.0	s	Delay before opening
T5 :	0.0	s	Delay before closure
T6 :	0.0	s	Preservation after movement (specifics outputs)
T7 :	0.5	s	Flashing light : Faded time
T8 :	0.5	s	Flashing light : Lit time
T9 :	1.0	s	Preservation for opening loop
T10 :	2.0	s	Delay (o) for internal lock. Do not change
T11 :	2.00	s	Delay (c) for internal lock. Do not change
T12 :	15.00	s	Delay before sending "Default info"

INPUTS SELECTING

I0:	*High position limit switch	I7:	*Closure (Manu mode)
I1:	*Low position limit switch	I8:	*Safety with NC contact
AI2:	-----	I9:	*Opening from gate
I3:	*Swing-off sensor / internal lock	I10:	*Opened lock
I4:	*Pedestrian safety (Which do not close)	I11:	*Closure from gate
I5:	*Auto / Manu	I12:	*Closed lock
I6:	*Opening (Manu mode)		

WITH EXTENSION LOGIC BOARD

I13:	*Opening (Auto mode)	I17:	*Locking after O/F
I14:	*External validation	I18:	*Inhibition of the opening loop
I15:	*Interlock gate - Opening from the inside	I19:	-----
I16:	*Safety with NO contact	I20:	-----

OUTPUTS SELECTING

O0:	*Opening order (freq. inverter)	O4:	*Interlock gate prohibit 2nd barrier
O1:	*Closure order (freq. inverter)	O5:	*Counting loop B1 + cell I8 + Delay 9
O2:	*Low speed order (freq. inverter)	O6:	-----
O3:	*Order for tip / internal lock	O7:	*Flashing light(s) / Revolving light

WITH EXTENSION LOGIC BOARD

O8:	*Loop "B1" information	O12:	*Low position information
O9:	*Loop "B2" information	O13:	*"Swing-off sensor" information
O10:	*Loop "B3" information	O14:	*Default information
O11:	*High position information	O15:	*B manual mode

PREDEFINED FUNCTIONS

1: The delay if no passage (T1)
(•) Closes the barrier
( ) Doesn't close the barrier

2: Emergency stop
(•) Without
( ) With

3: Opening
(•) Auto-maintained
( ) With deadman control

4: During the closure, the safety
(•) Opens the barrier
( ) Doesn't open the barrier

5: (card)reader 1
(•) Without validation
( ) With validation (through the validation loop 1)

6: The pedestrian safety gives out a contact
(•) NO
( ) NC

7: Directionnal loops B3 and B4
(•) Activation crossing the 2nd loop
( ) Activation crossing the 1st loop

8: Priority blocking
(•) Opening
( ) Closure and without safety

9: Functioning of the revolving light (SW5=OFF)
(•) During the movement
( ) During the movement and in the closed position

10: Functioning of the revolving light (SW5=OFF)
(•) During the movement
( ) During the movement and in the open position

11: Counter C1
(•) Without B3 and B4 crossings
( ) With B3 and B4 crossings

12: ***
(•)
( )

13: ***
(•)
( )

14: ***
(•)
( )

15: ***
(•)
( )

16: ***
(•)
( )

LOOPS

B1:	*Security under boom	B2:	*Loop for validation 1

WITH EXTENSION LOGIC BOARD

B3:	-----	B4:	-----

DIP switches

SW1	ON	Non utilisé
	OFF	Non utilisé
SW2	ON	Entrée I3 dédiée au capteur de verrouillage interne
	OFF	Entrée I3 dédiée au capteur de dégondage (voir FP2 pour fonctionnement spécifique à l'arrêt)
SW3	ON	Non utilisé
	OFF	Non utilisé
SW4	ON	La sortie O4 compte les passages sur la boucle B1 + Cellule avec signal T7
	OFF	La sortie O4 arrête la commande de la seconde barrière du SAS
SW5	ON	La sortie O7 est affectée à un éclairage continu (gyrophare par exemple)
	OFF	La sortie O7 est affectée à un éclairage clignotant
SW6	ON	La sortie O7 est active pendant le mouvement et lorsque la barrière est fermée.
	OFF	La sortie O7 est active pendant le mouvement et inactive lorsque la barrière est fermée.
SW7	ON	La sortie O7 est active pendant le mouvement et lorsque la barrière est ouverte.
	OFF	La sortie O7 est active pendant le mouvement et inactive lorsque la barrière est ouverte.
SW8	ON	Pilotage barrière esclave : la sortie O5 donne un ordre d'ouverture et O6 un ordre de fermeture
	OFF	Info de position haute en O5 et position basse en O6

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6 LOGIC PROGRAMMING

The logic was factory configured and tested in accordance with the specifications of the purchase order. Any modification, such as the addition of equipment (photocells, reader, lighting, etc.), must be done by a qualified technician and with the approval of our technical service.

For particular settings, please contact our customer service.

6.1 Programs available

Program number	Program type
01	***Perimeter* type generic program**
02	***Highway* type generic program**
03	***Client*** specific program
04	***Retrofit*** specific program (old boards)
05	***Parking* generic program**
06	***Client*** specific program
07	**Traffic management type generic program**
…	…

6.2 Program selection

The program is factory installed and configured by our technicians. It is selected and configured based on the specifications set forth on the purchase order by the client.

This program shall only be modified with full knowledge by a qualified technician.

To modify the active program, refer to section 7.6.7 (HMI) or section 8.11 (HTTP interface).

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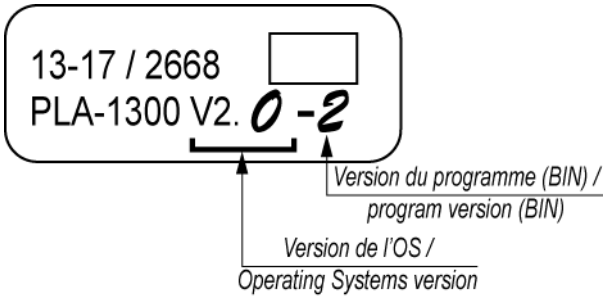
6.3 Compatibility

OS and program (bin) versions are written on the nameplate (item 11, section 4.1) located on the transformer of board PLA1300.



The version of the OS corresponds to the two numbers located after the **V**:

V1.6 means OS version **1.6**.

The version of the program (bin) is written after the OS version.

Compatibility can therefore be established as follows:

	Initial OS version	▷	Final OS version
POSSIBLE	V**1.6**-2	✓	V**1.6**-8
IMPOSSIBLE	V**1.6**-2	✘	V**1.7**-0
POSSIBLE	V**2.0**-0	✓	V**2.0**-1
IMPOSSIBLE	V**2.0**-0	✘	V**2.1**-0

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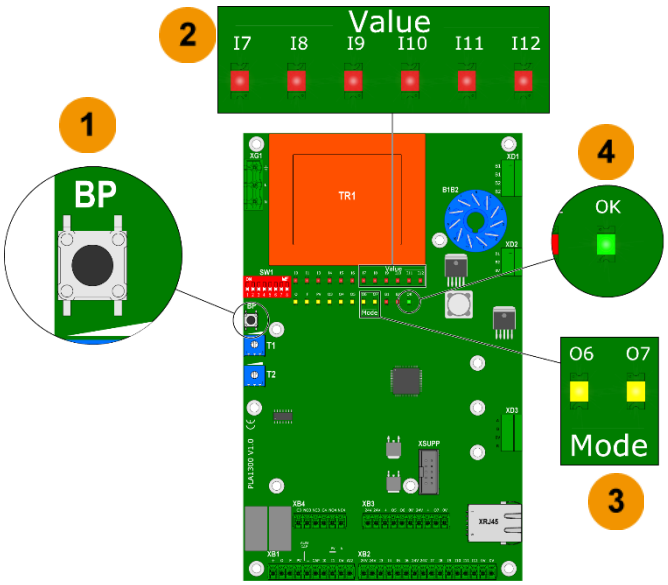
7 HMI

The human-machine interface (HMI) of board PLA1300 can be used to view the active program number and to access the various modes designed to configure the logic.

7.1 Layout

The HMI component is comprised of the following:

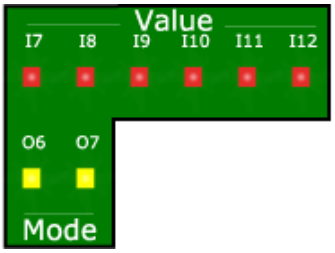
- A push-button (***PB***) 1 to choose and/or modify the value of a parameter;
- ***VALUE*** 2 LEDs to display the values of the parameters;
- ***MODE*** 3 LEDs to display the tens digit;
- LED ***OK*** 4 to confirm a parameter has been taken into account.



7.2 Active program number display

When the board is turned on, ***Mode*** and ***Value*** LEDs display the board's program for 5 seconds. This information is displayed by LEDs I7 to I12, and O6 and O7.

It is recommended to write down which LEDs open before reading the program number.



Prog xy

- ***Mode*** LEDs (O6 and O7) display the tens digit.

Lit LEDs	O6	O7	O6 + O7
Value of x	0	1	2

- ***Value*** LEDs (I7 to I12) display the unit digit.

Lit LEDs	I7	I8	I9	I10	I11	I12	I7+I8	I7+I9	I7+I10	I7+I11
Value of x	0	1	2	3	4	5	6	7	8	9

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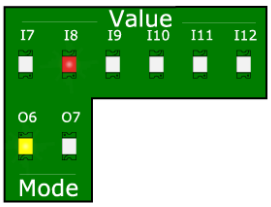
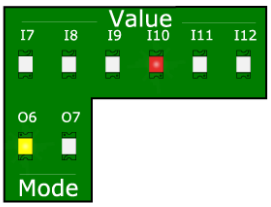
Here are a few examples:

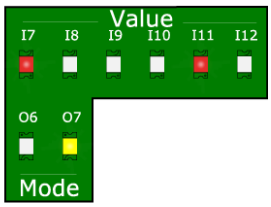
- Program 1 -



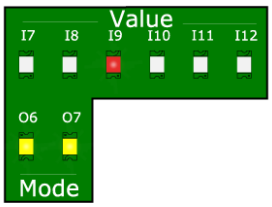
- Program 3 -



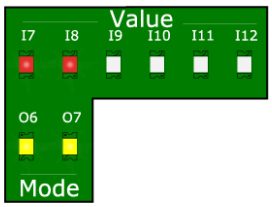
- Program 19 -



- Program 22 -



- Program 26 -



7.3 Modes

There are ***9 modes available***:

- ***Mode 0***: To open and close the barrier or to initialize the analog sensor
- ***Mode 1***: To modify time delays
- ***Mode 2***: To modify loop assignment
- ***Mode 3***: To modify predefined functions
- ***Mode 4***: To modify output assignment
- ***Mode 5***: To modify input assignment
- ***Mode 6***: To modify the program of board PLA1300
- ***Mode 7***: To modify the program of the VFD, and the opening and closure %
- ***Mode 8***: To modify direct actions such as:
    - 1: VFD type selection (0 = TOR / 1 = serial)
    - 2: Shimming (0 = no / 1 = yes)
    - 3: Sensor type (0 = TOR / 1 = analog)
    - 4: Temporary reset of the IP address
    - 5: Factory reset of the IP address
    - 6: Reopening when an obstacle is detected (0 = no / 1 = yes)

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7.4 Display logic for LED OK

When working with the HMI, the status of LED ***OK*** is an excellent way to visualize the programming step you are in.

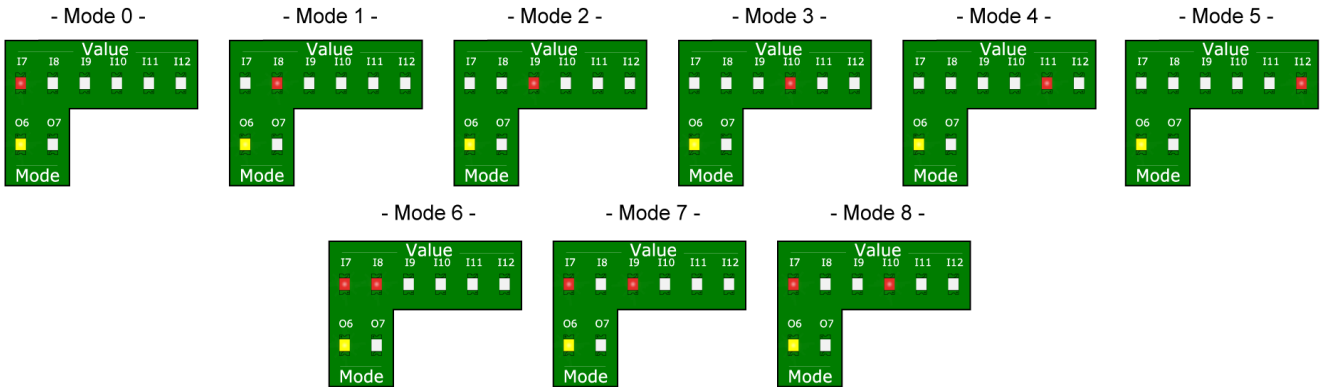
The following table shows the 5 statuses of LED ***OK***:

PLA1300: LED OK status

Lit		Auto mode
Off		HMI: Mode selection in progress
50%		HMI: Parameter selection in progress or Manu mode
20%		HMI: Selection of value 1 of the parameter in progress
80%		HMI: Selection of value 2 of the parameter in progress
Fast blink		HMI: Analog sensor initialization in progress

7.5 Mode selection

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off ☐.
- The mode to be modified can now be selected:



- Increment ↑: Short press of the ***PB*** (less than 0.5 seconds);
- Decrement ↓: Longer press (0.5 seconds to 2 seconds) of the ***PB***;
- Confirm: Long press of the ***PB*** (± 3 seconds) until all HMI LEDs light up.

When mode selection is enabled, LED ***OK*** is off.

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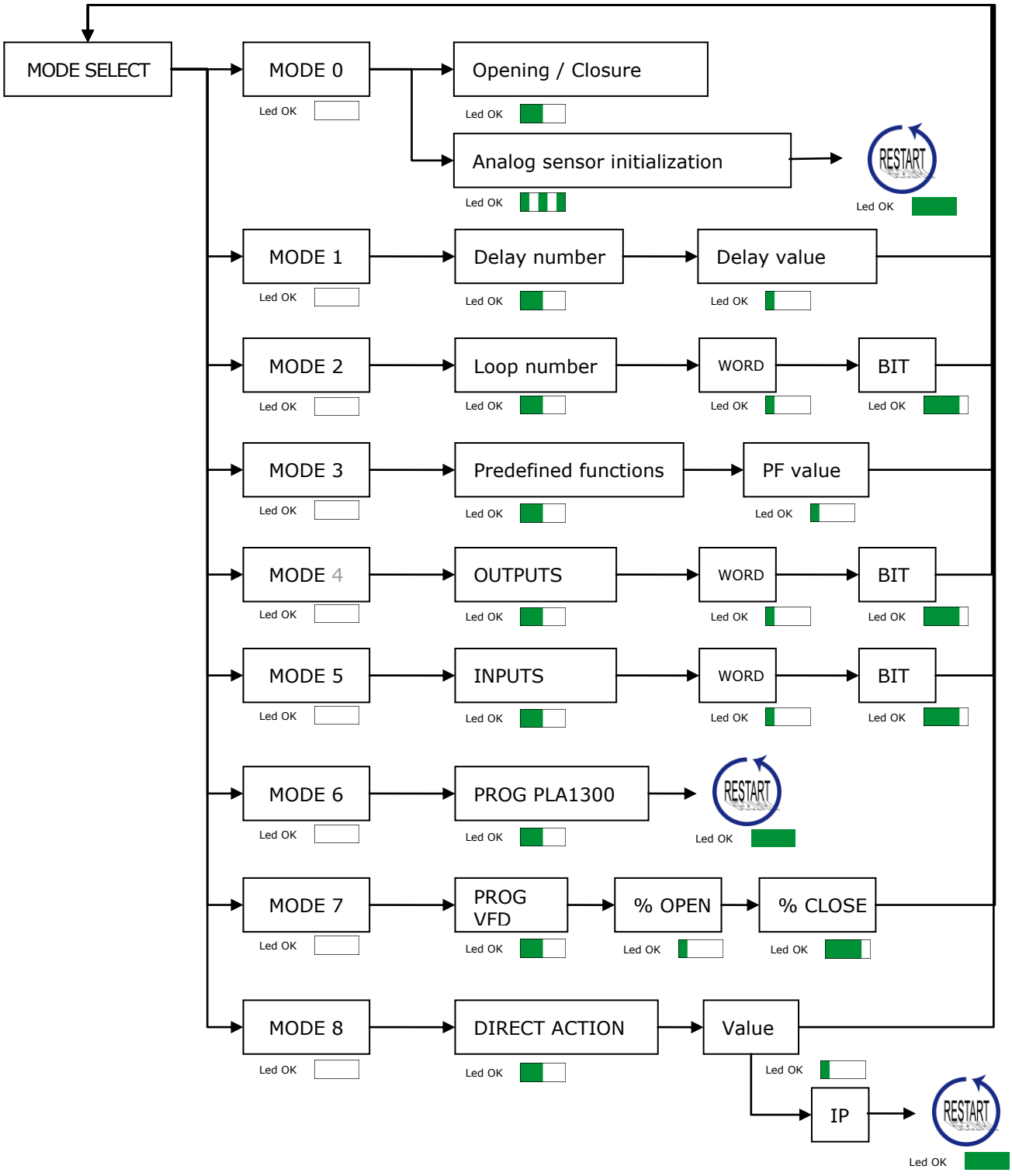
7.6 Detailed description of the modes



For an interpretation of the images of LED OK, refer to section 7.4

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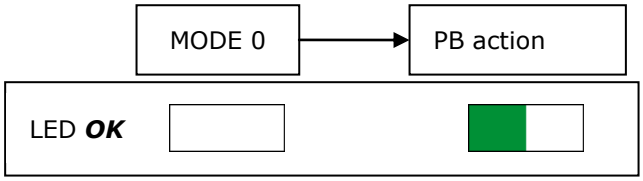
7.6.1 Mode 0 – Opening/closure or analog sensor initialization



To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LED ***I7*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

Possible actions:

For this mode, the duration of the ***PB*** press is very important.

Once this mode is selected:

- A ***short*** press will send an ***opening or closure command*** to the barrier *(single contact command/remote control switch mode)*.
- A ***long*** press (longer than 3 seconds) will start the ***initialization of the analog sensor*** (LED ***OK*** blinks fast), provided the sensor was declared.

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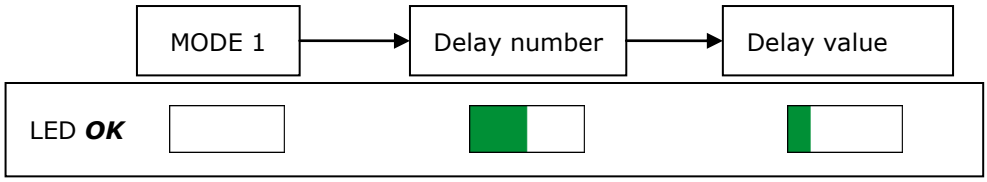
7.6.2 Mode 1 – Time delay modification



This mode is used to modify the values of the 12 time delays.

To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the **PB**. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LED ***I8*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To modify a delay:

- Based on the information in the table below, select the delay to modify by pressing the ***PB*** many times.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .
- Using the delay value table below, select the new value for the delay by pressing the ***PB*** many times.
- To confirm the value, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** is off .

Delay number	HMI display (LEDs)	Delay description
T1	I8-O6	Reclosure if no passage (potentiometer max value)
T2	I9-O6	Reclosure if passage (potentiometer max value)
T3	I10-O6	End of movement
T4	I11-O6	Delay before opening
T5	I12-O6	Delay before closure
T6	I7-I8-O7	Preservation after movement (specifics outputs)
T7	I7-I9-O7	Flashing light: Faded time
T8	I7-I10-O7	Flashing light: Lit time
T9	I7-I11-O7	Preservation for opening loop
T10	I7-O7	Delay (O) for internal lock. Do not change.
T11	I8-O7	Delay (C) for internal lock. Do not change.
T12	I9-O7	Delay before sending "Default info"

Delay values			
HMI display (LEDs)			Value (sec)
I7	-	O6	0
I8	-	O6	0.2
I9	-	O6	0.5
I10	-	O6	1
I11	-	O6	2
I12	-	O6	3
I7	I8	O6	4
I7	I9	O6	5
I7	I10	O6	6
I7	I11	O6	7
I7	-	O7	8
I8	-	O7	9
I9	-	O7	10
I10	-	O7	15
I11	-	O7	20
I12	-	O7	30
I7	I8	O7	60
I7	I9	O7	90
I7	I10	O7	120
I7	I11	O7	180
I7	O6	O7	300
I8	O6	O7	600
I9	O6	O7	999

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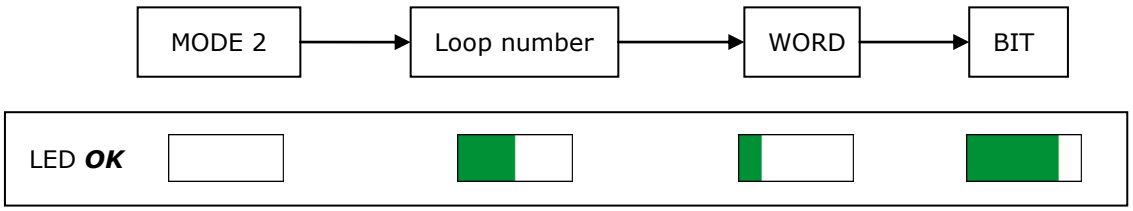
7.6.3 Mode 2 – Loop assignment modification



This mode is used to modify loop assignment.

To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LED ***I9*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To modify the configuration of a loop:

In this mode, loop assignment is done by changing the value of the WORD and the BIT in accordance with the values in the table below:

Loop number	HMI display (LEDs)		
Loop B1	I8	-	O6
Loop B2	I9	-	O6
Loop B3	I10	-	O6
Loop B4	I11	-	O6

WORD	HMI display (LEDs)		
6	I7	I8	O6

WORD	**BIT**	Value	HMI display (LEDs)	
M6	**0**	Loop under arm	I7	O6
	1	Opening loop	I8	O6
	2	Loop for validation 1	I9	O6
	3	Loop for validation 2	I10	O6
	10	*B1 look at SW3 on the electrical diagram	I7	O7
	11	B2 look at SW3 on the electrical diagram	I8	O7

The only acceptable values for loop configuration are the ones in the table above. Before confirming the value, the ***WORD*** and the ***BIT*** should be checked carefully.

The * means this is a default value of the program selected for board PLA1300 (*program 01 in this case*).

When the ***WORD*** is being written, LED ***OK*** blinks: short lit/long off .

When the ***BIT*** is being written, LED ***OK*** blinks: long lit/short off .

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Example (*with the values of program 01*):

In the following example, the configuration of loop ***B1*** will go from ****B1 look at SW3 on the electrical diagram***, which is the default value, to ***Loop under arm***.

1. Cut power to the board.
2. Press and hold the ***PB*** and restart the board.
3. All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
4. LED ***OK*** turns off .
5. Press the ***PB*** many times until LED ***I9*** lights up.
6. To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
7. LED ***OK*** blinks .
8. LEDs ***I8*** and ***O6*** are lit, indicating that loop ***B1*** is selected.
9. To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
10. LEDs ***I7***, ***I8*** and ***O6*** are lit, indicating that ***WORD 6*** is selected, and LED ***OK*** blinks in a short lit/long off pattern .
11. To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).

HMI LEDs display the current value. The LED lighting pattern can therefore vary based on the current configuration.
Refer to the table above to determine the current value.

12. LED ***OK*** blinks in a long lit/short off pattern to indicate that the value of the BIT must be entered.
13. Press the ***PB*** many times until LEDs ***I7*** and ***O6*** are lit, indicating that value ***Loop under arm*** is selected.
14. To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
15. LED ***OK*** turns off to indicate that you are back in mode selection.
16. Cut power to the board.
17. Restart the board.

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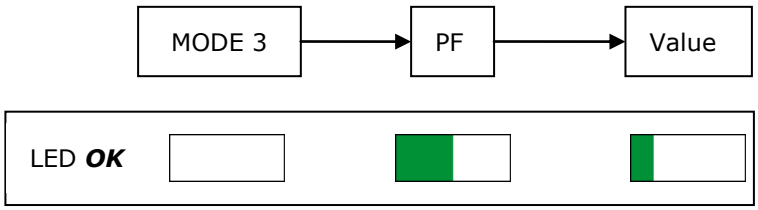
7.6.4 Mode 3 – Predefined function modification



This mode is used to modify the values of the 16 predefined functions.

To access mode 3:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LED ***I10*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To modify the value of a predefined function:

PF number	HMI display (LEDs)			Predefined function definition
1	I8	-	O6	Delay if no passage (T1)
2	I9	-	O6	Emergency stop
3	I10	-	O6	Opening
4	I11	-	O6	During the closure, the safety
5	I12	-	O6	(Card) reader 1
6	I7	I8	O6	Pedestrian safety gives out a contact
7	I7	I9	O6	Remote control switch
8	I7	I10	O6	Priority blocking
9	I7	I11	O6	Functioning of the revolving light (SW5=OFF)
10	I7	-	O7	Functioning of the revolving light (SW5=OFF)
11	I8	-	O7	***
12	I9	-	O7	***
13	I10	-	O7	***
14	I11	-	O7	***
15	I12	-	O7	***
16	I7	I8	O7	Internal lock functioning if no power supply

PF values		
HMI display (LEDs)		Value
I7	O6	Closes the barrier
I8	O6	Doesn't close the barrier
I7	O6	With
I8	O6	Without
I7	O6	Auto-maintained
I8	O6	With deadman control
I7	O6	Opens the barrier
I8	O6	Doesn't open the barrier
I7	O6	Without validation
I8	O6	With validation[9]
I7	O6	NO
I8	O6	NC
I7	O6	Disabled
I8	O6	Enabled[10]
I7	O6	Opening
I8	O6	Closure and without safety
I7	O6	During the movement
I8	O6	During the movement and in the closed position
I7	O6	During the movement
I8	O6	During the movement and in the open position
I7	O6	-
I8	O6	-
I7	O6	-
I8	O6	-
I7	O6	-
I8	O6	-
I7	O6	-
I8	O6	-
I7	O6	-
I8	O6	-
I7	O6	Locked for both positions
I8	O6	Locked when opened and unlocked when closed (specific mounting)

[9] (Through the validation loop 2)
[10] (Cancels any other operation)

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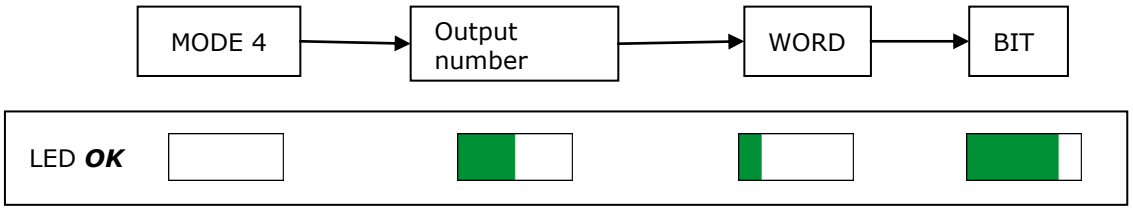
The table above shows the predefined functions of program 01.

Because predefined functions are unique to each program, please refer to the diagram provided with your equipment.

7.6.5 Mode 4 – Output selection modification



To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LED ***I11*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To modify the configuration of a loop:

As in mode 2, output assignment will be done by modifying the WORD and the BIT (from **M7.0** to **M9.15 + M13.5**), in accordance with the table below:

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Output number	HMI display (LEDs)		
O0	I7	-	O6
O1	I8	-	O6
O2	I9	-	O6
O3	I10	-	O6
O4	I11	-	O6
O5	I12	-	O6
O6	I7	I8	O6
O7	I7	I9	O6

WORD	HMI display (LEDs)		
7	I7	I9	O6
8	I7	I10	06
9	I7	I11	O6
13	I10	-	O7

WORD	BIT	Value	HMI display (LEDs)		
M7	**0**	*Opening order (freq. inverter)	I7	-	06
	1	*Closure order (freq. inverter)	I8	-	O6
	2	*Low speed order (freq. inverter)	I9	-	O6
	3	High position information	I10	-	O6
	4	Low position information	I11	-	O6
	5	Safety under boom information	I12	-	O6
	6	Loop "B1" information	I7	I8	O6
	7	Loop "B2" information	I7	I9	O6
	8	Loop "B3" information	I7	I10	O6
	9	Loop "B4" information	I7	I11	O6
	10	"Swing-off sensor" information	I7	-	O7
	11	Internal lock	I8	-	O7
	12	Electrical tip	I9	-	O7
	13	Opening order for slave barrier	I10	-	O7
	14	Closure order for slave barrier	I11	-	O7
	15	Flashing light(s)	I12	-	O7

WORD	BIT	Value	HMI display (LEDs)		
M8	**0**	Revolving light	I7	-	O6
	1	Red/green traffic lights	I8	-	O6
	2	Default information	I9	-	O6
	3	High position information (NC contact)	I10	-	O6
	4	Low position information (NC contact)	I11	-	O6
	5	Siren	I12	-	O6
	6	Loop "B1" information (NC contact)	I7	I8	O6
	7	Loop "B2" information (NC contact)	I7	I9	O6
	8	Loop "B3" information (NC contact)	I7	I10	O6
	9	Loop "B4" information (NC contact)	I7	I11	O6
	10	"Swing-off sensor" information (NC contact)	I7	-	O7

WORD	BIT	Value	HMI display (LEDs)		
M9	**0**	Safety under boom information / Red/green traffic lights	I7	-	O6
	1	Order for tip / Internal lock	I8	-	O6
	2	High position / Opening of the slave barrier	I9	-	O6
	3	Low position / Closure of the slave barrier	I10	-	O6
	6	Obstacle	I7	I8	O6
	5	Flashing light(s) / Revolving light	I12	-	O6
	7	Vandalism	I7	I9	O6
	8	Shimming	I7	I10	O6
	10	Low intermediate position 2	I7	-	O7
	11	High intermediate position 2	I8	-	O7
	12	Green light direction A	I9	-	O7
	13	Green light direction B	I10	-	O7

WORD	BIT	Value	HMI display (LEDs)		
M13	**5**	Active output during movement	I12	-	O6

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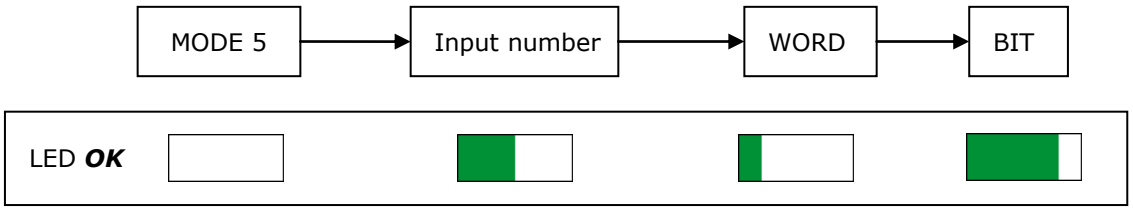
7.6.6 Mode 5 – Input selection modification



To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LED ***I12*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To modify the configuration of a loop:

As in modes 2 and 4, input assignment will be done by modifying the WORD and the BIT (from **M5.0** to **M6.15**), in accordance with the table below:

Output No.	HMI display (LEDs)		
I0	I7	-	O6
I1	I8	-	O6
AI2	I9	-	O6
I3	I10	-	O6
I4	I11	-	O6
I5	I12	-	O6
I6	I7	I8	O6
I7	I7	I9	O6
I8	I7	I10	O6
I9	I7	I11	O6
I10	I7	-	O7
I11	I8	-	O7
I12	I9	-	O7

WORD	BIT	Value	HMI display (LEDs)		
M5	**0**	*High position limit switch	I7	-	06
	1	Low position limit switch	I8	-	O6
	2	Opening (Manu mode)	I9	-	O6
	3	Closure (Manu mode)	I10	-	O6
	4	Swing-off sensor / Internal lock	I11	-	O6
	5	Auto / Manu	I12	-	O6
	8	Safety with NC contact	I7	I10	O6
	10	Opened lock	I7	-	O7
	11	Closed lock	I8	-	O7
	12	Remote control switch	I9	-	O7
	13	Safety with NO contact	I10	-	O7
	14	Opening (secondary reader)	I11	-	O7
	15	External validation	I12	-	O7

WORD	HMI display (LEDs)		
5	I12	-	O6
6	I7	I8	06

WORD	BIT	Value	HMI display (LEDs)		
M6	**1**	Opening loop	I8	-	O6
	2	Loop for validation 2	I9	-	O6
	4	Inhibition of the opening loop	I11	-	O6
	6	Opening (Auto mode)	I7	I8	O6
	8	Pedestrian safety (which do not close)	I7	I10	O6
	9	Emergency stop	I7	I11	O6
	15	Interlock gate – opening from the inside	I12	-	O7

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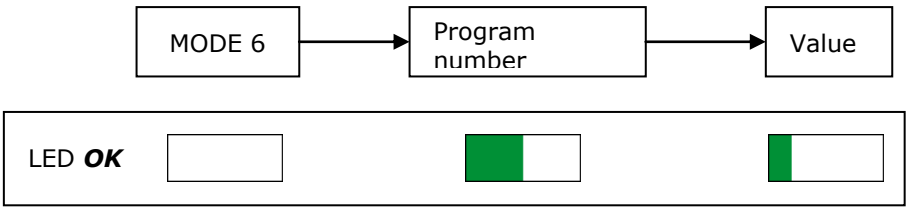
7.6.7 Mode 6 – Board program modification



To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LEDs ***I7 and I8*** light up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To change the program:

There could be up to 29 VFD programs available on board PLA1300.
However, only the programs actually loaded in the board's memory will be available.

HMI display (LEDs)	Program number
I8-O6	Program 1
I9-O6	Program 2
I10-O6	Program 3
I11-O6	Program 4
I12-O6	Program 5
I8-O6-I7	Program 6
I9-O6-I7	Program 7
I10-O6-I7	Program 8
I11-O6-O7	Program 9
I7-O7	Program 10
I8-O7	Program 11
I9-O7	Program 12
I10-O7	Program 13
I11-O7	Program 14
I12-O7	Program 15

HMI display (LEDs)	Program number
I7-I8-O7	Program 16
I7-I9-O7	Program 17
I7-I10-O7	Program 18
I7-I11-O7	Program 19
O6-O7-I7	Program 20
O6-O7-I8	Program 21
O6-O7-I9	Program 22
O6-O7-I10	Program 23
O6-O7-I11	Program 24
O6-O7-I12	Program 25
O6-O7-I7-I8	Program 26
O6-O7-I7-I9	Program 27
O6-O7-I7-I10	Program 28
O6-O7-I7-I11	Program 29

If you attempt to confirm a program that does not exist, the change will not take effect and you will remain in program selection mode (LED ***OK*** will continue to blink until a valid program is chosen).

Once the program of board PLA1300 has been chosen and confirmed, the board resets and the new program becomes active.

This program shall only be modified with full knowledge by a qualified technician because the configuration defined for inputs, outputs and loops, among other things, could be different and could greatly modify the behavior of board PLA1300 and consequently that of the equipment linked to it.

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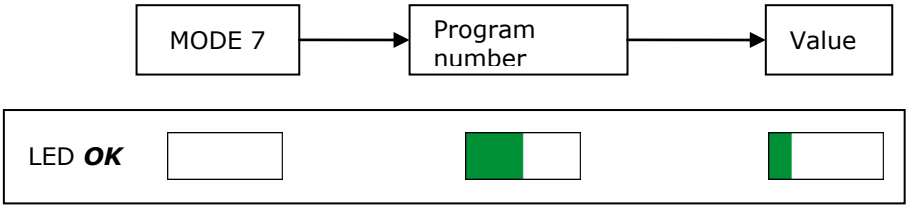
7.6.8 Mode 7 – VFD program and opening/closing time modification

This mode is only available with a VFD controlled over a serial link.



To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LEDs ***I7 and I9*** light up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To change the program:

There could be up to 29 VFD programs available on board PLA1300.
However, only the programs actually loaded in the board's memory will be available.

HMI display (LEDs)	Program number
I7-O6	Program 0
I8-O6	Program 1
I9-O6	Program 2
I10-O6	Program 3
I11-O6	Program 4
I12-O6	Program 5
I8-O6-I7	Program 6
I9-O6-I7	Program 7
I10-O6-I7	Program 8
I11-O6-O7	Program 9
I7-O7	Program 10
I8-O7	Program 11
I9-O7	Program 12
I10-O7	Program 13
I11-O7	Program 14
I12-O7	Program 15

HMI display (LEDs)	Program number
I7-I8-O7	Program 16
I7-I9-O7	Program 17
I7-I10-O7	Program 18
I7-I11-O7	Program 19
O6-O7-I7	Program 20
O6-O7-I8	Program 21
O6-O7-I9	Program 22
O6-O7-I10	Program 23
O6-O7-I11	Program 24
O6-O7-I12	Program 25
O6-O7-I7-I8	Program 26
O6-O7-I7-I9	Program 27
O6-O7-I7-I10	Program 28
O6-O7-I7-I11	Program 29

Once the VFD program has been chosen and confirmed, the **opening time of the barrier can be programmed**.

LED ***OK*** blinks according to the following pattern: **short lit/long off**.

Once the opening time is confirmed by a long press on the ***PB*** (all HMI LEDs light up), the **closing time of the barrier can be programmed**.

LED ***OK*** blinks according to the following pattern: **long lit/short off**.

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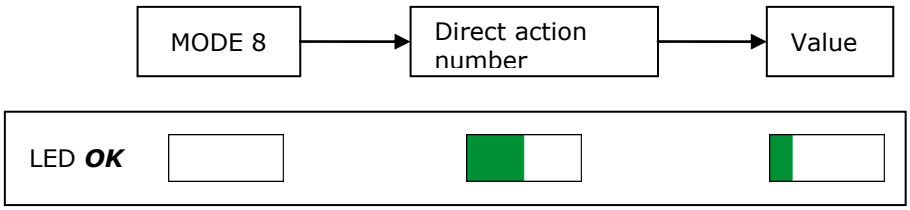
Time values			
HMI display (LEDs)			Value (%)
I8	-	O6	50
I9	-	O6	55
I10	-	O6	60
I11	-	O6	65
I12	-	O6	70
I7	I8	O6	75
I7	I9	O6	80
I7	I10	O6	85
I7	I11	O6	90
I7	-	O7	95
I8	-	O7	100

Select the value of the opening time based on the table above and confirm it by pressing the ***PB*** until all HMI LEDs light up (± 3 seconds).

Select the value of the closing time based on the table above and confirm it by pressing the ***PB*** until all HMI LEDs light up (± 3 seconds).

The system takes you back to mode selection and LED ***OK*** turns off .

7.6.9 Mode 8 – Direct action modification



To access the mode:

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LEDs ***I7 and I10*** light up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .

To modify an action:

Type of direct action	HMI display (LEDs)		Available choices	
VFD type selection	I8	-	I7 = TOR	I8 = SERIAL
Shimming	I9	-	I7 = NO	I8 = YES
Sensor type selection	I10	-	I7 = TOR	I8 = ANALOG
Temporary return to factory IP address	I11	-	*Board reset and return to **AUTO***	
Permanent return to factory IP address	I12	-	*Board reset and return to **AUTO***	
Detection of an obstacle	I7	I8	I7 = NO	I8 = YES

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Example:

In the following example, VFD type will be modified from TOR to SERIAL.

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LEDs ***I7 and I10*** light up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .
- Press the ***PB*** many times until LED ***I8*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks according to the following pattern: short lit/long off .
- Press the ***PB*** many times until LED ***I8*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks according to the following pattern: long lit/short off .
- The system takes you back to mode selection. LED ***OK*** is off.
- Cut power to the board.
- Restart the board.

7.6.10 WORD and BIT table

WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
0		I7 - 06	**13**	Input B1	I10 - O7	
			14	Input B2	I11 - O7	

WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
1		I8 - 06	**8**	Input B3	I7 I10 O6	
			9	Input B4	I7 I11 O6	
			10	Expansion board recognized	I7 - O7	
			11	Remote control switch 1 input	I8 - O7	
			12	Remote control switch 1 output	I9 - O7	
			13	Remote control switch 1 hold	I10 - O7	
			14	Remote control switch 2 input	I11 - O7	
			15	Remote control switch 2 output	I12 - O7	

WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
2		I9 - 06	**9**	LSH LS Lock	I7 I11 O6	
			10	LSL	I7 - O7	
			11	Shimming validation	I8 - O7	

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WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
5		I12 - 06	**0**	High position limit switch	I7 - 06	
			1	Low position limit switch	I8 - O6	
			2	Barrier opening	I9 - O6	
			3	Barrier closure	I10 - O6	
			4	Swing-off sensor / Internal lock	I11 - O6	
			5	Auto / Manu	I12 - O6	
			6	Opening (Manu mode)	I7 I8 O6	
			7	Closure (Manu mode)	I7 I9 O6	
			8	Safety with NC contact	I7 I10 O6	
			9	Opening (Auto mode)	I7 I11 O6	
			10	Opened lock	I7 - O7	
			11	Closed lock	I8 - O7	
			12	Remote control switch	I9 - O7	
			13	Safety with NO contact	I10 - O7	
			14	Opening (secondary reader)	I11 - O7	
			15	External validation	I12 - O7	

WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
6		I7 I8 06	**0**	Loop under arm	I7 - 06	
			1	Opening loop	I8 - O6	
			2	Loop for validation 1	I9 - O6	
			3	Loop for validation 2	I10 - O6	
			4	Inhibition of the opening loop	I11 - O6	
			5	Counting counter C1	I12 - O6	
			6	Counting down counter C1	I7 I8 O6	
			7	Remaining counter C1	I7 I9 O6	
			8	Pedestrian safety (which do not close)	I7 I10 O6	
			9	Emergency stop	I7 I11 O6	
			10	B1 and B2 by SW3 (safety)	I7 - O7	
			11	B1 and B2 by SW3 (opening)	I8 - O7	
			12	B1 and B2 by SW3 (safety)	I9 - O7	
			13	B1 and B2 by SW3 (opening)	I10 - O7	
			14	Interlock gate – opening from the inside	I11 - O7	
			15	Red/green traffic lights prohibited	I12 - O7	

WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
7		I7 I9 06	**0**	Opening order (freq. inverter)	I7 - 06	
			1	Closure order (freq. inverter)	I8 - O6	
			2	Low speed order (freq. inverter)	I9 - O6	
			3	High position information	I10 - O6	
			4	Low position information	I11 - O6	
			5	Safety under boom information	I12 - O6	
			6	Loop "B1" information	I7 I8 O6	
			7	Loop "B2" information	I7 I9 O6	
			8	Loop "B3" information	I7 I10 O6	
			9	Loop "B4" information	I7 I11 O6	
			10	"Swing-off sensor" information	I7 - O7	
			11	Internal lock	I8 - O7	
			12	Electrical tip	I9 - O7	
			13	Opening order for slave barrier	I10 - O7	
			14	Closure order for slave barrier	I11 - O7	
			15	Flashing light(s)	I12 - O7	

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WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
8		I7 I10 06	**0**	Revolving light	I7 - 06	
			1	Red/green traffic lights	I8 - O6	
			2	Default information	I9 - O6	
			3	High position information (NC contact)	I10 - O6	
			4	Low position information (NC contact)	I11 - O6	
			5	Siren	I12 - O6	
			6	Loop "B1" information (NC contact)	I7 I8 O6	
			7	Loop "B2" information (NC contact)	I7 I9 O6	
			8	Loop "B3" information (NC contact)	I7 I10 O6	
			9	Loop "B4" information (NC contact)	I7 I11 O6	
			10	"Swing-off sensor" information (NC contact)	I7 - O7	
			11	B3 > B4 loops crossing	I8 - O7	
			12	B4 > B3 loops crossing	I9 - O7	
			13	Counter 1 direction B threshold reached	I10 - O7	
			14	/	I11 - O7	
			15	Manu mode direction B	I12 - O7	

WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
9		I7 I11 06	**0**	Safety under boom information / Red/green traffic lights	I7 - 06	
			1	Order for tip / Internal lock	I8 - O6	
			2	High position / Opening of the slave barrier	I9 - O6	
			3	Low position / Closure of the slave barrier	I10 - O6	
			4	-	I11 - O6	
			5	Flashing light(s) / revolving light	I12 - O6	
			6	Obstacle	I7 I8 O6	
			7	Vandalism	I7 I9 O6	
			8	Shimming	I7 I10 O6	
			9	Loop "B1" photocells I8+T9 information	I7 I11 O6	
			10	Low intermediate position 2	I7 - O7	
			11	High intermediate position 2	I8 - O7	
			12	Green light direction A	I9 - O7	
			13	Green light direction B	I10 - O7	
			14	Interlock gate – 2nd barrier not allowed	I11 - O7	
			15	External access control device loop not allowed	I12 - O7	

WORD	LED **OK** status	HMI display (LEDs)	BIT	Value	HMI display (LEDs)	LED **OK** status
18		I7 I10 07	**12**	Input delay for end of opening movement*	I9 - O7	
			13	Input delay for end of closing movement*	I10 - O7	
			14	Output delay for end of opening movement*	I11 - O7	
			15	Output delay for end of closing movement*	I12 - O7	

* Delay to lock after the movement

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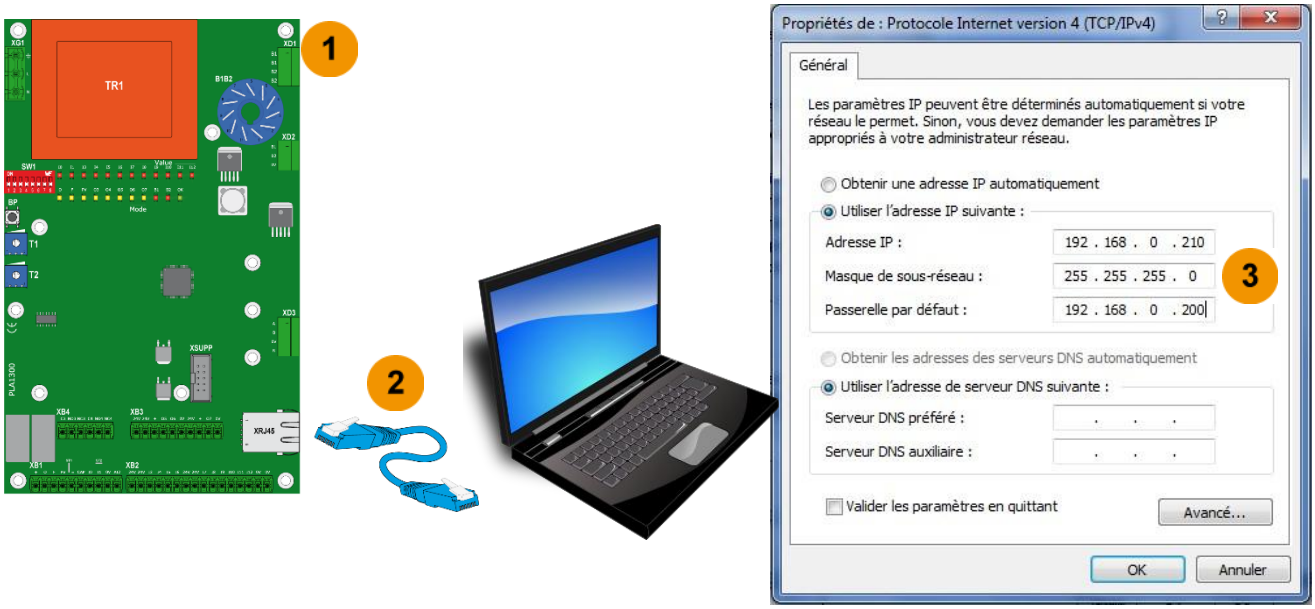
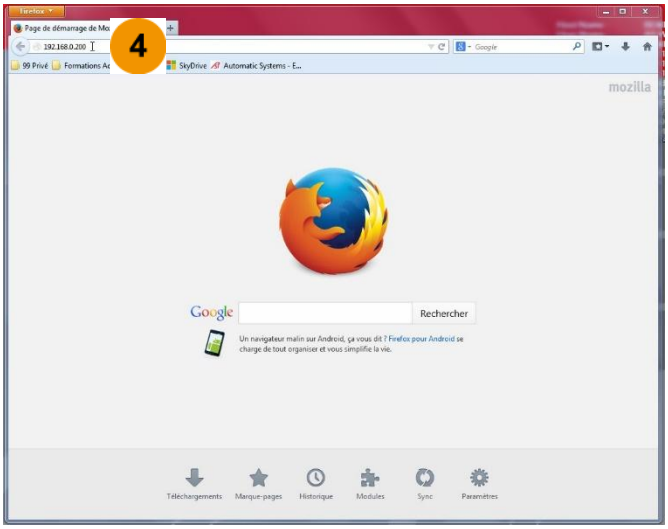
8 HTTP INTERFACE

8.1 Connection

To access the maintenance interface dedicated to the logic of board PLA1300 (1), you need an Ethernet cable (2), and the parameters of your network card (3) must be modified as shown beforehand:


1
2
Propriétés de : Protocole Internet version 4 (TCP/IPv4)
Général
Les paramètres IP peuvent être déterminés automatiquement si votre réseau le permet. Sinon, vous devez demander les paramètres IP appropriés à votre administrateur réseau.
Obtenir une adresse IP automatiquement
Utiliser l'adresse IP suivante :
Adresse IP : 192 . 168 . 0 . 210
Masque de sous-réseau : 255 . 255 . 255 . 0
Passerelle par défaut : 192 . 168 . 0 . 200
3
Obtenir les adresses des serveurs DNS automatiquement
Utiliser l'adresse de serveur DNS suivante :
Serveur DNS préféré :
Serveur DNS auxiliaire :
Valider les paramètres en quittant
Avancé...
OK
Annuler

Once your network card is configured, enter IP address **192.168.0.200** in the navigation bar (4) of your Internet browser.



You are directed to the Home screen of the communication interface used to access the logic (⇨ section 8.2).

All the screens detailed in the following pages pertain to program 01 of the programmable control logic. Program specific parameters can therefore vary.
Refer to the diagrams provided with the equipment.

Screen shots were taken from Firefox. When another browser is used, the appearance of the screens can vary slightly. However, their content will be the same.

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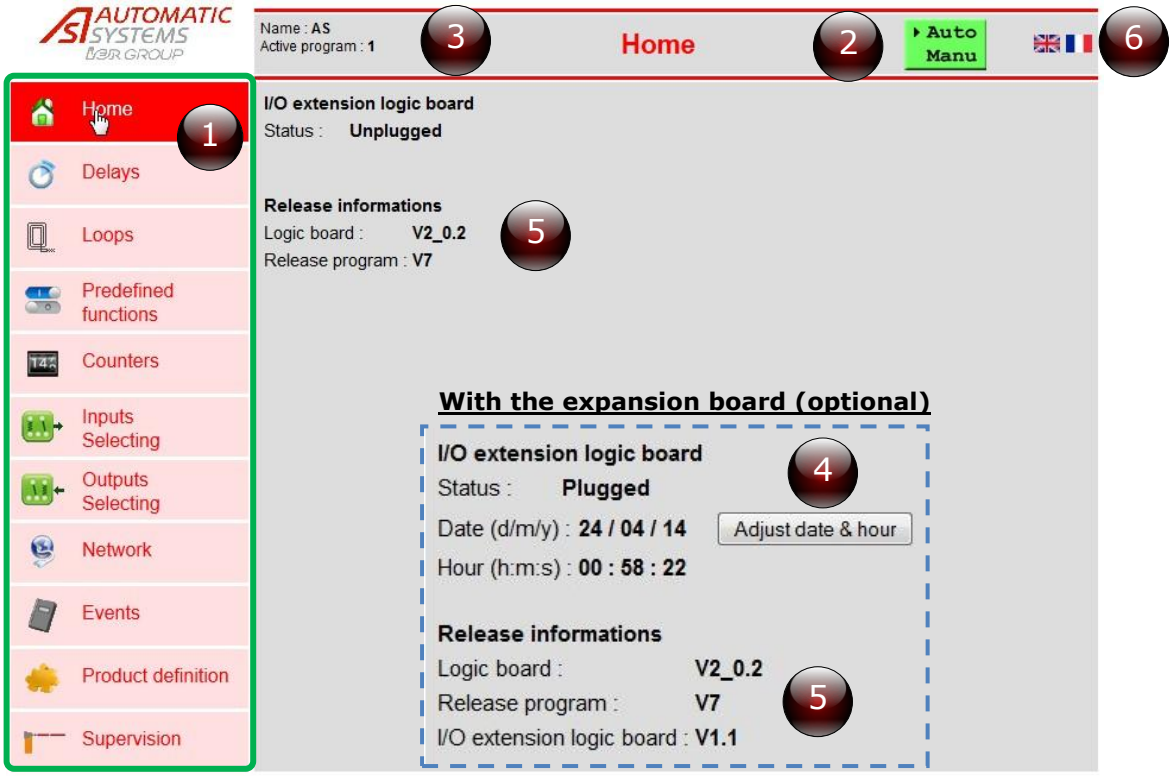
8.2 Home screen



1	Menu	Select from various interface screens (⇨ see following sections). The menu is accessible on all screens.
2	Auto / Manu button	Button used to switch from ***Auto*** (automatic) mode to ***Manu*** (manual) mode, and vice versa. In ***Auto*** mode, the barrier follows the status changes of the inputs. In ***Manu*** mode, the operator controls the barrier via a PC.
		The color of the button changes according to its status: In ***Auto*** mode, the button is green In ***Manu*** mode, the button is red
		Clicking on menu items Loops, Predefined functions, Inputs Selecting, Outputs Selecting and Product definition generates an automatic switch to ***Manu*** mode.
3	Active program	Name of the host and active program number.
4	Adjust date & hour	Button used to modify the date and time manually, by entering the data by hand or by loading data from the PC. (⇨ 10)
5	Releases	Logic board: OS and user program (***.bin***) releases of board PLA1300. Release program: User program release currently in use. Expansion board: Release of expansion board PLA1301, when installed. (This board is optional.)
6	Language	Buttons used to change the language of the interface: French (FR) or English (EN).

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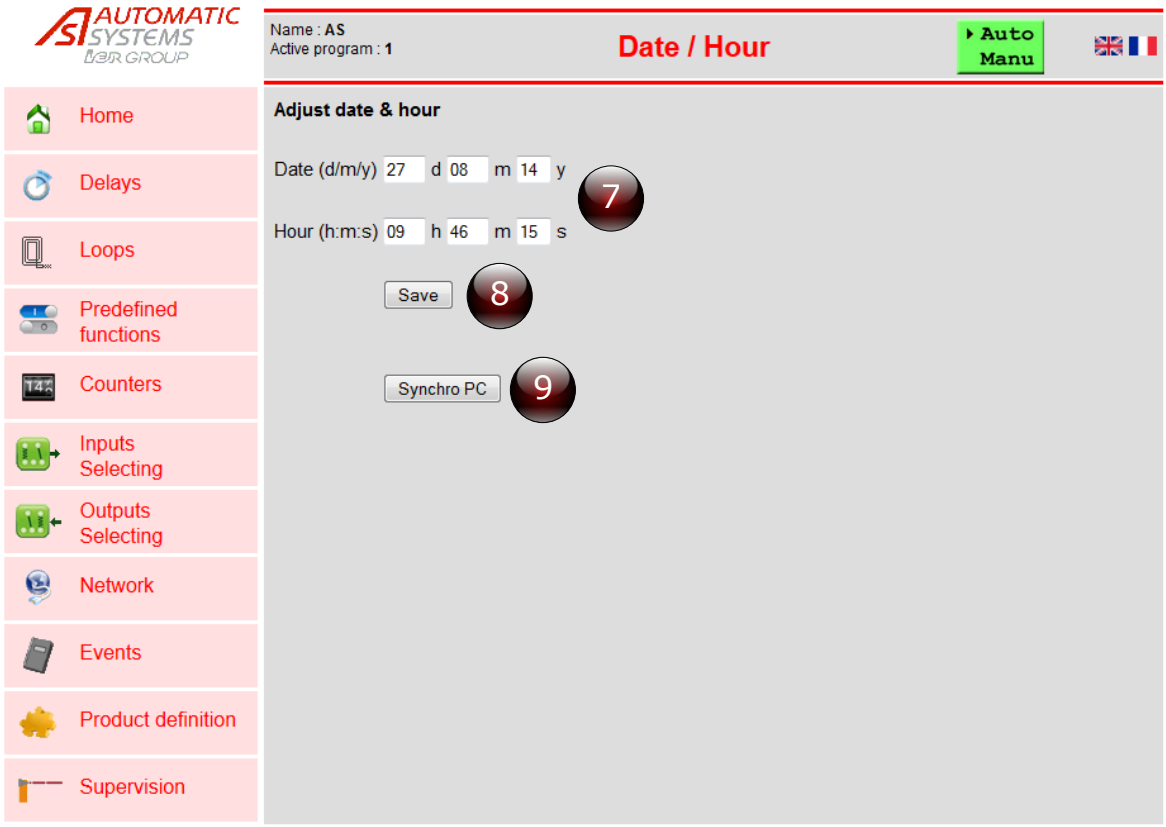

7		Fields used to set the date and time.
8	Save	Button used to save the new values.
9	Synchro PC	Button used to get the date and time from the PC connected to board PLA1300.

Date and time parameters can only be accessed via expansion board PLA1301, available as an option.

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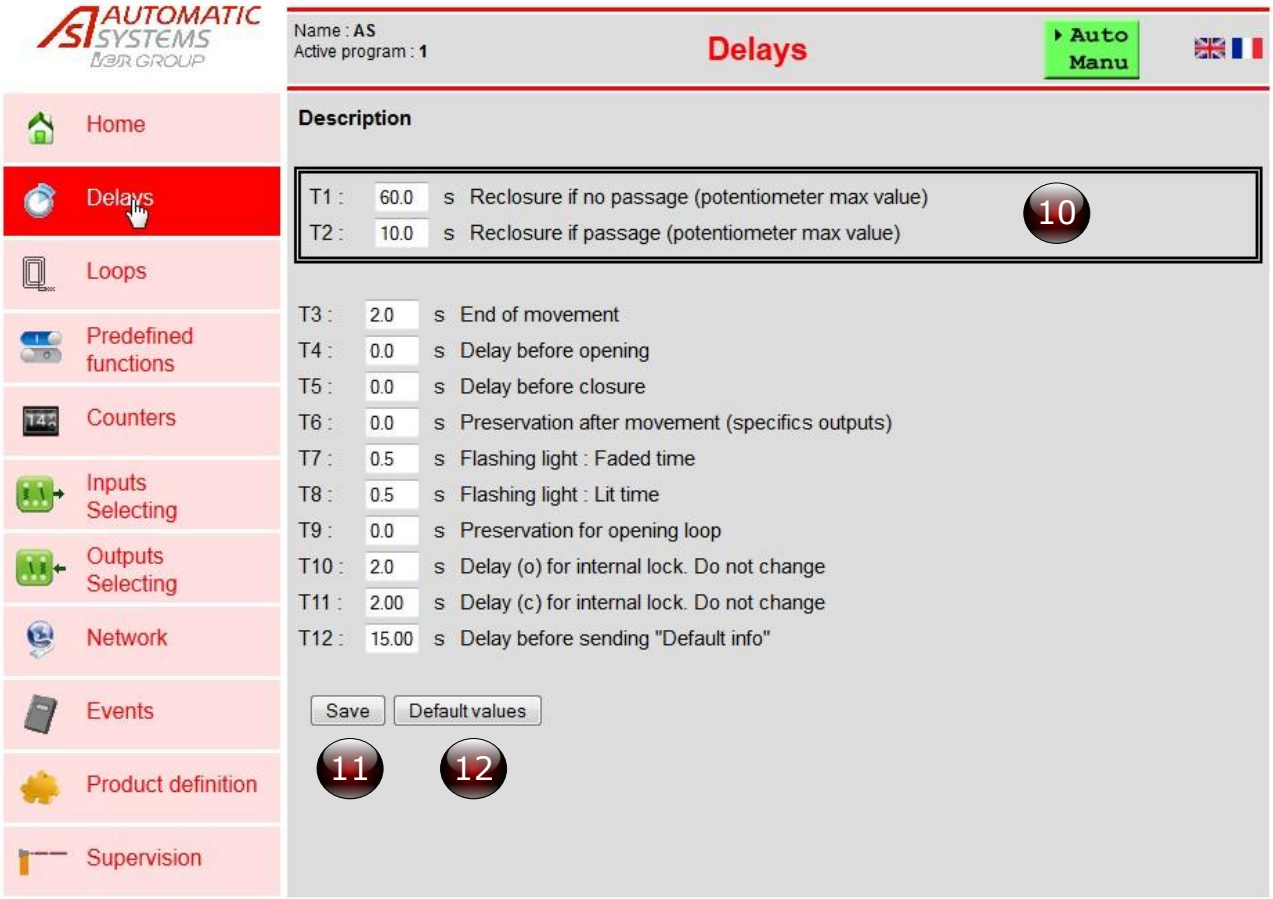
8.3 Delays screen


AUTOMATIC SYSTEMS
IDR GROUP
Name : AS
Active program : 1
Delays
Auto
Manu
Home
Delays
Loops
Predefined functions
Counters
Inputs Selecting
Outputs Selecting
Network
Events
Product definition
Supervision
Description
T1 : 60.0 s Reclosure if no passage (potentiometer max value)
T2 : 10.0 s Reclosure if passage (potentiometer max value)
10
T3 : 2.0 s End of movement
T4 : 0.0 s Delay before opening
T5 : 0.0 s Delay before closure
T6 : 0.0 s Preservation after movement (specifics outputs)
T7 : 0.5 s Flashing light : Faded time
T8 : 0.5 s Flashing light : Lit time
T9 : 0.0 s Preservation for opening loop
T10 : 2.0 s Delay (o) for internal lock. Do not change
T11 : 2.00 s Delay (c) for internal lock. Do not change
T12 : 15.00 s Delay before sending "Default info"
Save
Default values
11
12

10		Fields used to modify the maximum values of time delays T1 and T2.
		The values of time delays T1 and T2 are directly affected by the adjustments made on potentiometers T1 and T2 located on board PLA1300.
		Time delays ***T10*** and ***T11***: If the barrier has not started to move after the time delay, the rotation direction of the motor will be reversed for a brief moment and a second opening or closure attempt will be made.
		Time delay ***T12***: If the cycle has not ended after this time delay, output ***Default information*** is enabled. (No fault will be triggered; the unblocking attempt is permanent. There is therefore no procedure to put the equipment back in service.)
11	Save	Button used to save the new values.
12	Default values	Button used to revert to the default values set for the delays (active program settings).

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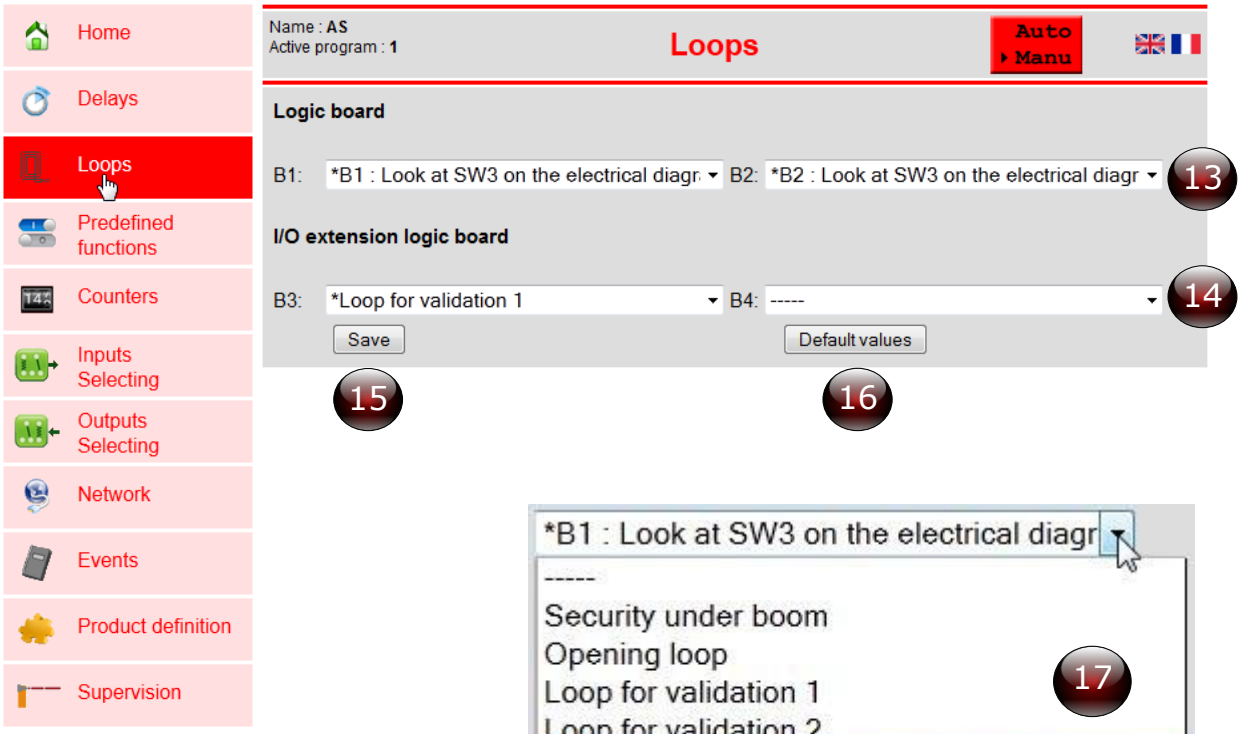
8.4 Loops screen



13		Dropdown lists used to modify the settings for loops B1 and B2 of board PLA1300.
		When I5 is in ***Auto*** mode, a security loop generates a reclosure on the falling edge of the presence detection. Validation loop 1 or 2 inhibits the main or secondary reader input when no vehicle is detected.
14		Dropdown lists used to modify the settings for loops B3 and B4 of expansion board PLA1301 (optional).
15	Save	Button used to save the new values.
16	Default values	Button used to revert to the default values set for the loops (active program settings).
17		Dropdown list of the values that can be selected for a loop.

Symbol * is displayed besides the default value.

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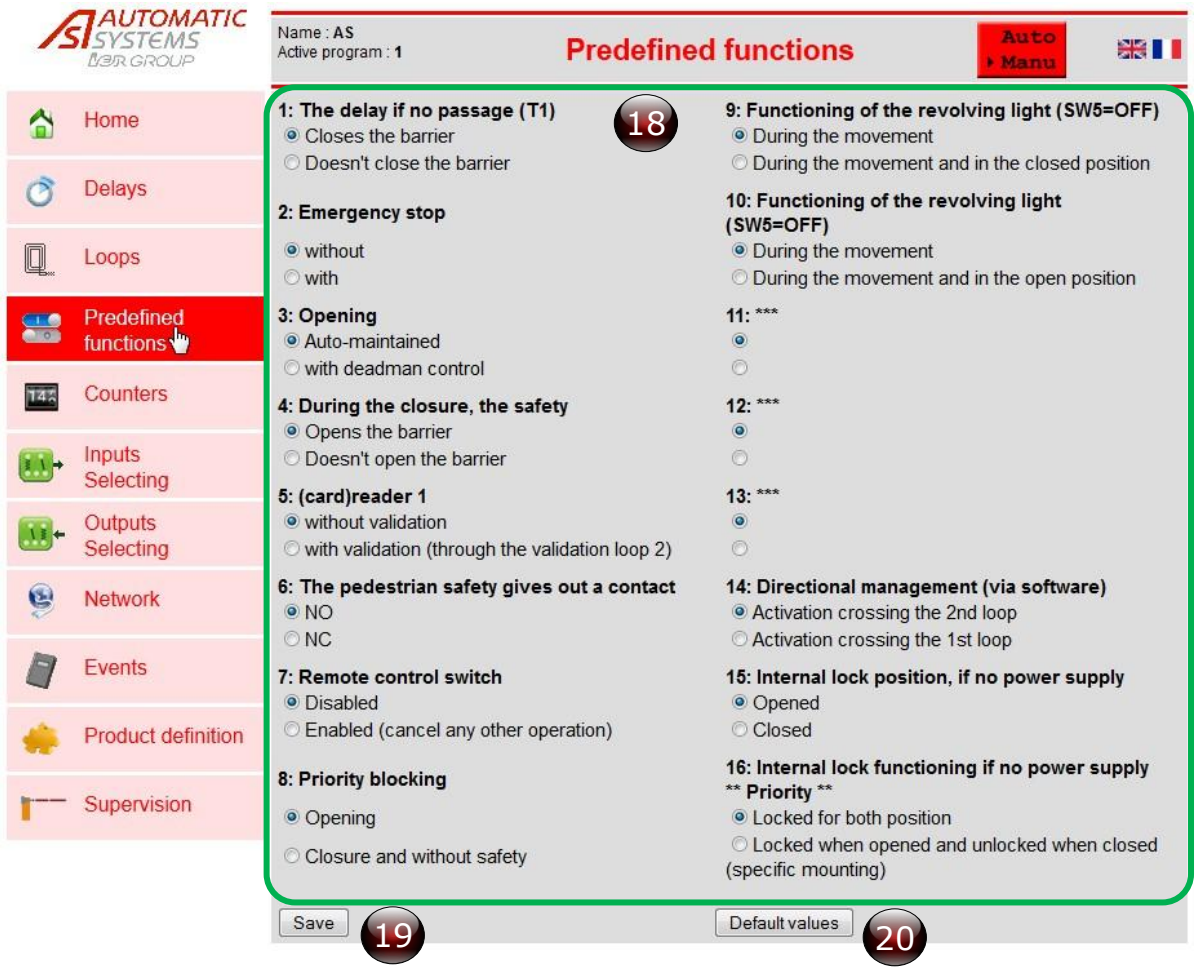
8.5 Predefined functions screen



18		There are 16 predefined functions with 2 values each. ○ Predefined function 1: Time delay ***T1*** (no passage) is only enabled after an opening action is performed in ***Auto*** mode (opening via the opening loop or a signal from a reader). ○ Predefined function 2: Used to stop any movement in progress if the emergency stop input is configured and enabled. ○ Predefined function 3: ***Dead man*** operation maintains the contact closed during the entire cycle; when the contact is open, the power to the motor is cut. ***(Only works when the motor has a brake.)*** ○ Predefined function 7: In ***Remote control switch*** mode, opening and closure are the result of a pulse on input ***I15*** (or any other input assigned to function ***Remote control switch***). This mode automatically disables the other commands with the exception of locked open and locked closed. ○ Predefined function 8: Typically, a ***locked open*** command has priority over a ***locked closed*** command. Warning! The ***locked closed*** command is not inhibited by safety inputs or loops.
19	Save	Button used to save the new values.
20	Default values	Button used to revert to the default values set for the predefined functions (active program settings).

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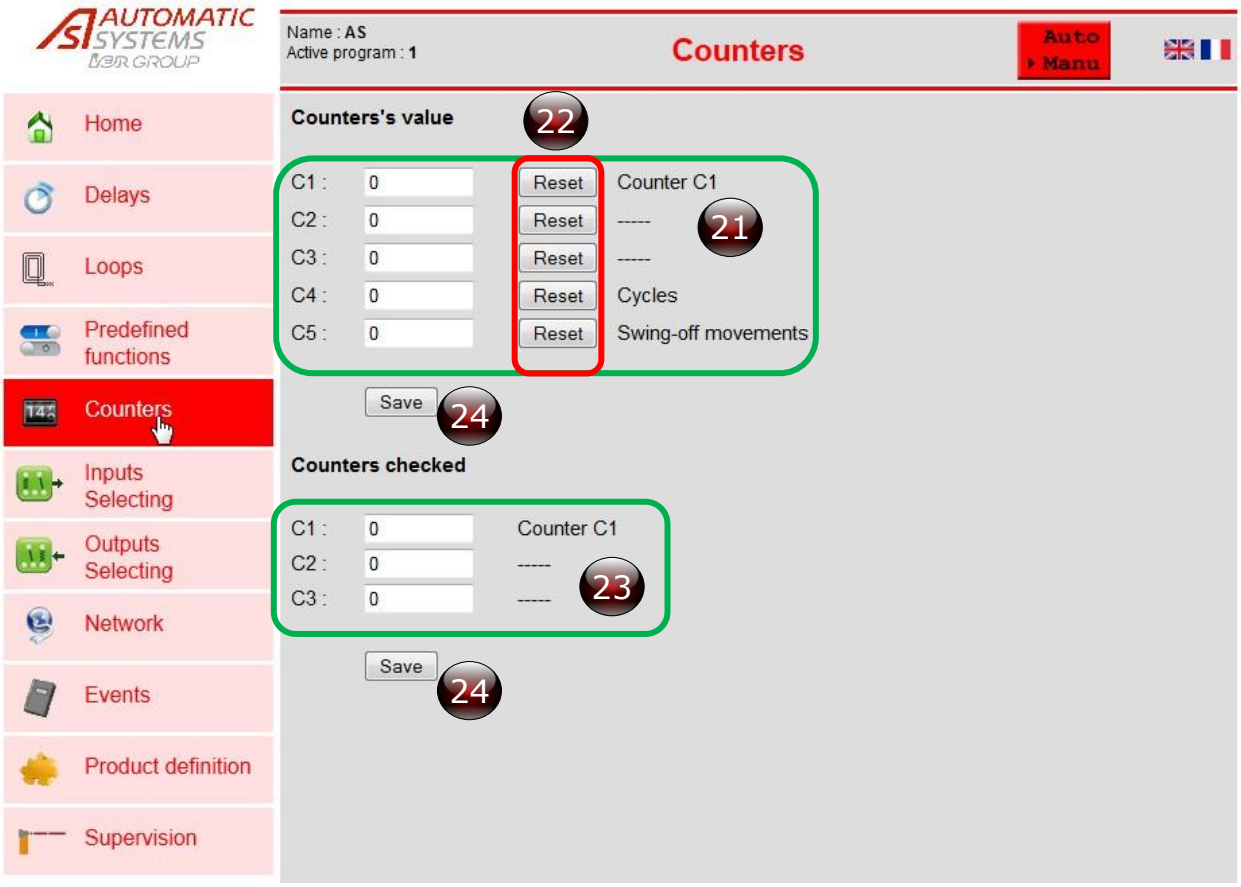
8.6 Counter screen



21		Values of the available counters (comparison between the number of inputs and outputs), number of actions, number of swing-offs, etc.
22		Button used to reset the counters. Do not forget to confirm the reset by clicking on button Save.
23		Counter thresholds. ***(Only with program 05.)*** A threshold is defined for an action to occur. For instance: the threshold of C1 = 100 (number of parking spaces available). If the threshold value is reached, output "FULL display" is enabled.
24	Save	Button used to save the new values.

Counters are not saved if board PLA1301 is not connected.

Their values are reset if there is a power failure.

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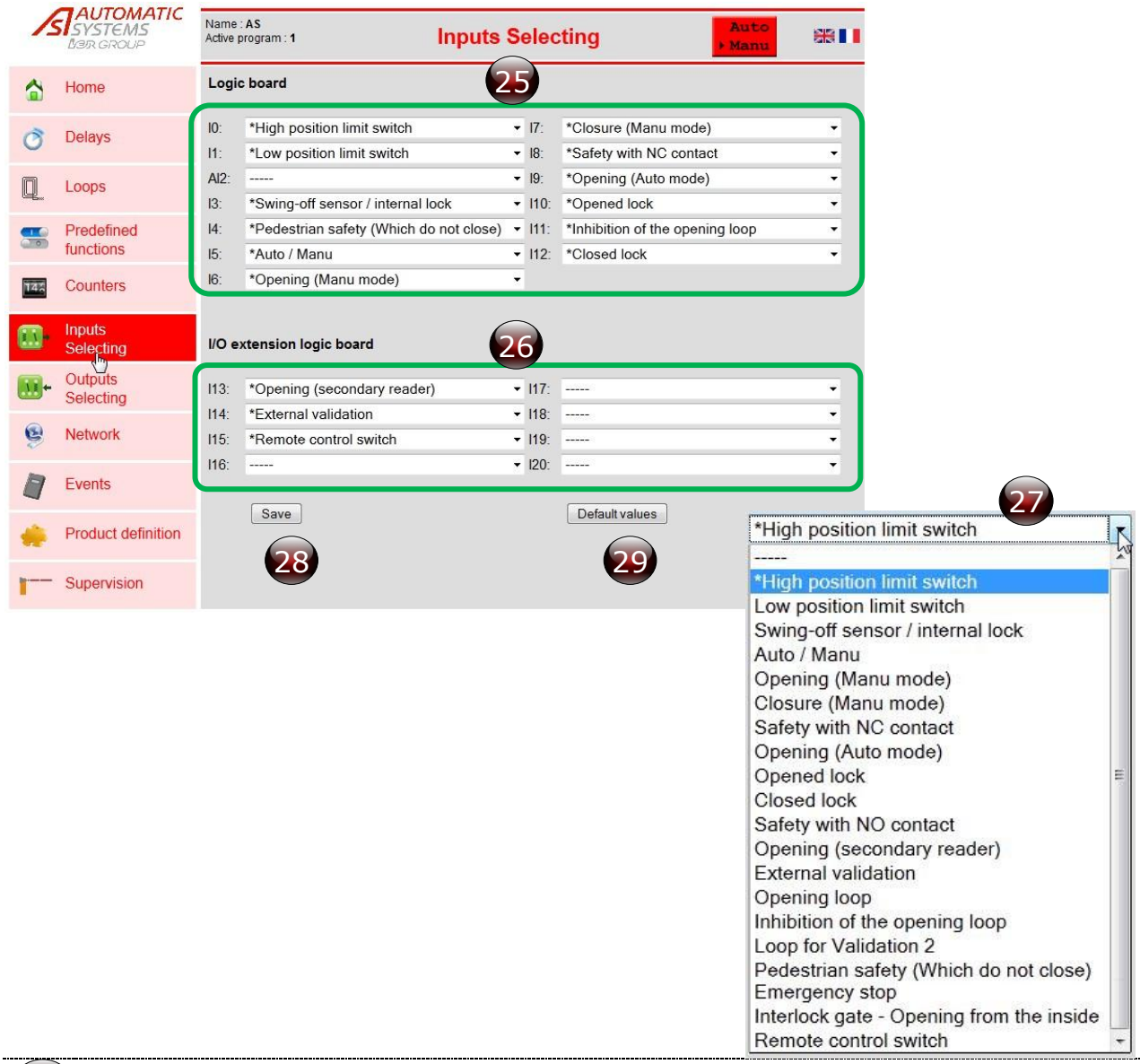
8.7 Inputs Selecting screen



25		Values of the 12 inputs available on board PLA1300.
26		Values of the 8 extra inputs available on expansion board PLA1301 (optional).
27		Dropdown list of the values that can be selected for an input.
		For example, selecting ***Inhibition of the opening loop*** for an input will prevent free entry at specific hours through the use of a timer.
		Input ***Emergency stop*** is NC (contact closed on 24 V). When the contact is open, the RB stops (if it is equipped with a brake). All movements are inhibited during an emergency stop.
		Input ***Interlock gate – opening from the inside*** is used to control the second barrier when the first one is reclosed and a vehicle is detected.
		Dropdown lists will vary slightly depending on the active program and counting functions are only available with program 05.
28	Save	Button used to save the new values.
29	Default values	Button used to revert to the default values set for the inputs (active program settings).

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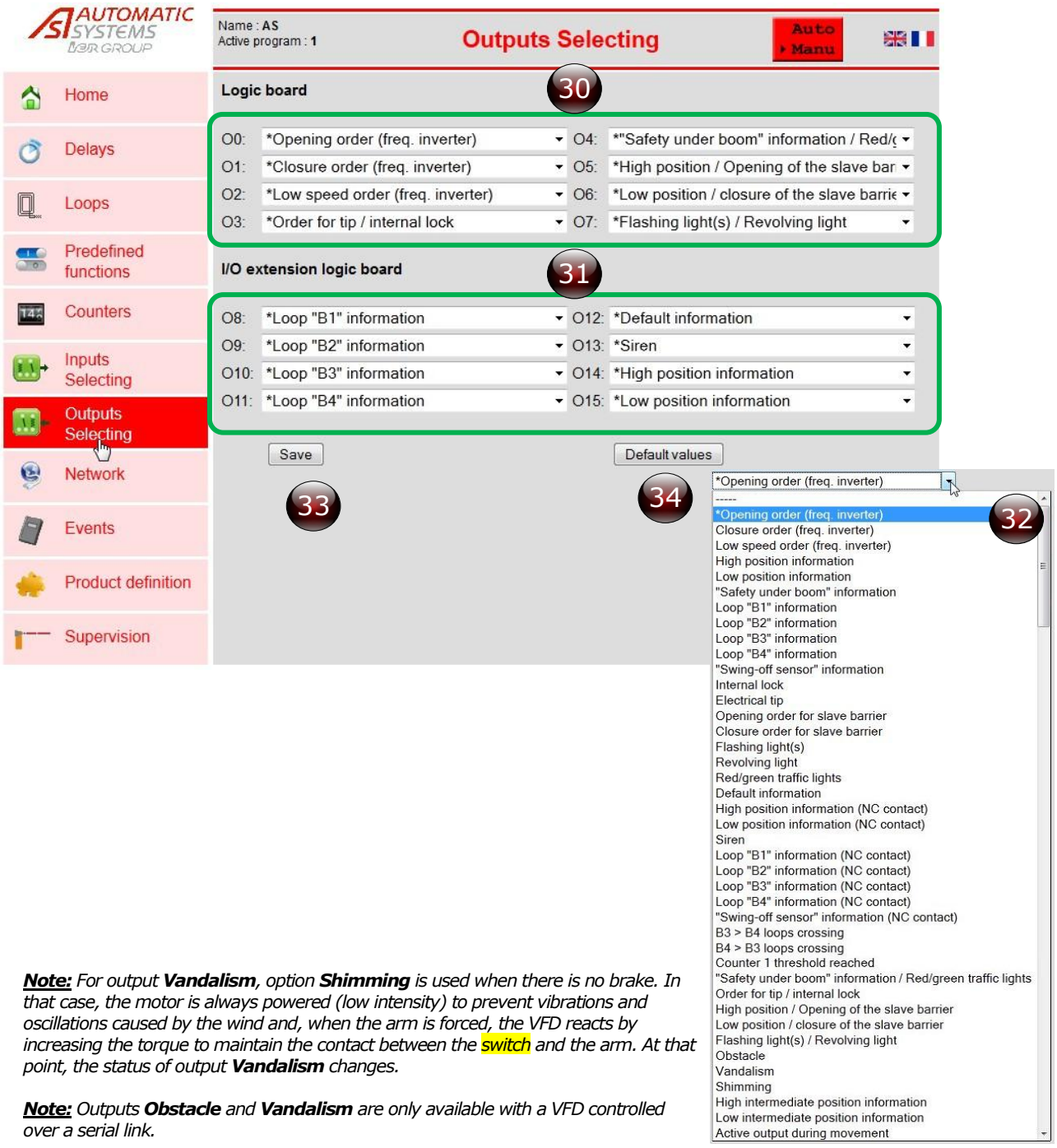
8.8 Outputs Selecting screen



Note: *For output **Vandalism**, option **Shimming** is used when there is no brake. In that case, the motor is always powered (low intensity) to prevent vibrations and oscillations caused by the wind and, when the arm is forced, the VFD reacts by increasing the torque to maintain the contact between the switch and the arm. At that point, the status of output **Vandalism** changes.*

Note: *Outputs **Obstacle** and **Vandalism** are only available with a VFD controlled over a serial link.*

30		Values of the 8 outputs available on board PLA1300.
31		Values of the 8 extra outputs available on expansion board PLA1301 (optional).
32		Dropdown list of the values that can be selected for an output.
33	Save	Button used to save the new values.
34	Default values	Button used to revert to the default values of set for the outputs (active program settings).

8.9 Network screens

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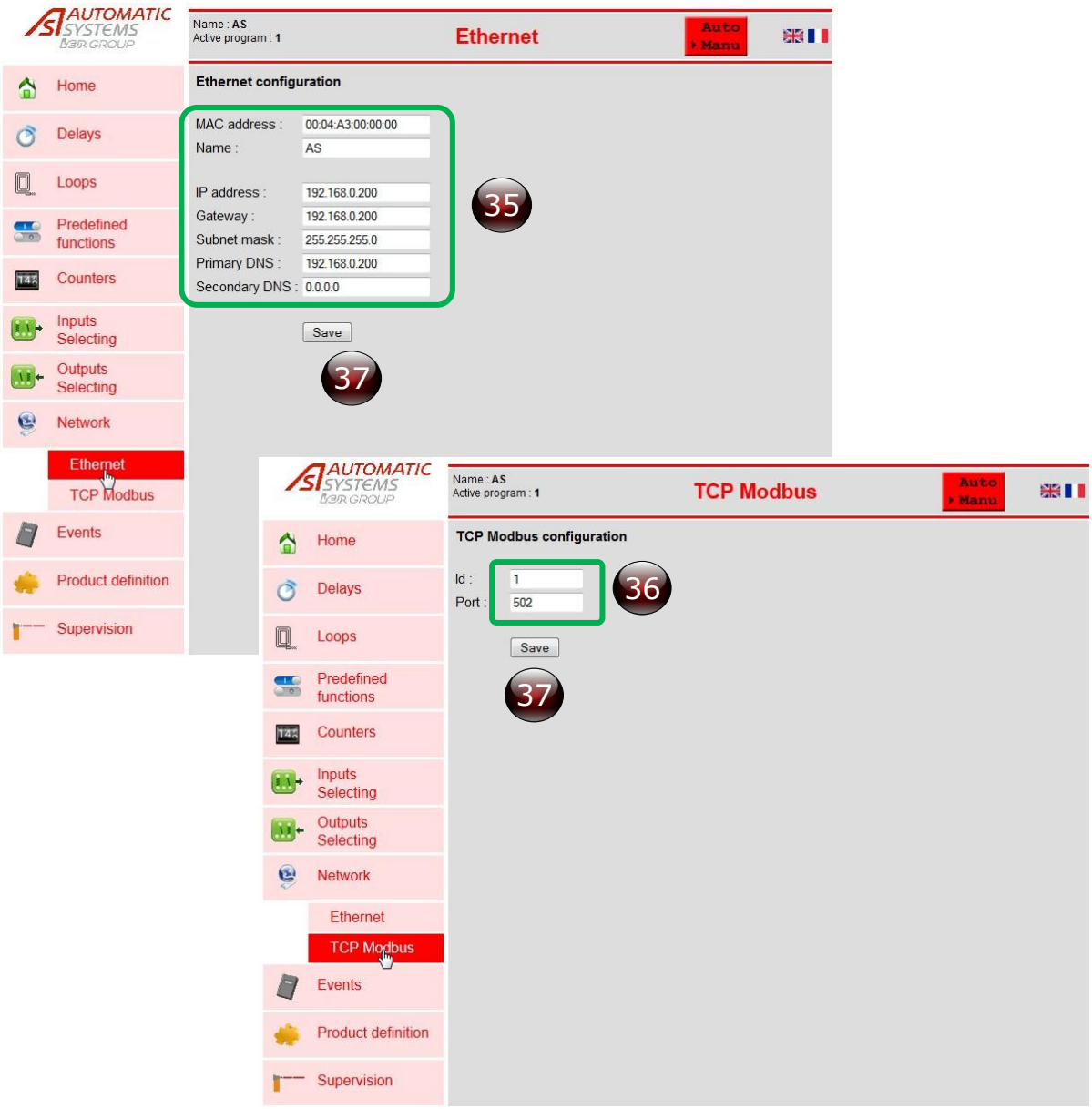

35		Values of the network settings of board PLA1300.
36		Values of the Modbus settings of board PLA1300.
37	Save	Button used to save the new values.

The default IP address is ***192.168.0.200***.
When modifications are made, it is always possible to revert to the default IP address by following the procedure described in section 8.17 .

- Once these settings are modified, the board and the Internet browser must be restarted.
- If the IP address is changed, remember to change the host name and MAC address.

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8.10 Events screens

This screen is used to view the codes of events triggered during the operation of board PLA1300.

With the expansion board (optional)

38		Table of events displayed with the most recent event on top. Date and Hour fields are only visible when expansion board PLA1301 (optional) is connected to board PLA1300.
39	Beginning	Button used to go to the beginning of the list of events.
40	Next	Button used to go to the next page of the list of events.

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Here is a list of some of the codes along with their descriptions:

Code:	Corresponding event:
1	Board powered-on
2	VFD initialization
3	Expansion board, battery low
30	Fault when reading flash parameters
31	Fault when loading a new program
32	Sensor not initialized
33	Communication failure with the VFD
34	VFD failure
35	Expansion board, battery dead, information lost
36	Sensor initialized but not connected
64	Info, new program loaded + program number
65	Info, default program settings reloaded
66	Info, time delay value changed + delay number
67	Info, loop selection changed
68	Info, input selection changed
69	Info, output selection changed
70	Info, barrier type modified + new type
71	Info, arm changed + new arm
72	Info, arm length changed + new length
80	Info, sensor type modified + new type
81	Info, predefined function changed
82	Info, analog sensor values changed manually (in admin mode)
83	Info, other changes to the product, e.g. time in %
84	Info, TCP Modbus settings modified
85	Info, Ethernet settings modified
90	Info, default delays reloaded
91	Info, default loops reloaded
92	Info, default inputs reloaded
93	Info, default outputs reloaded
94	Info, default predefined functions reloaded
95	Info, barrier closure time elapsed (from PLC)
96	Info, barrier opening time elapsed (from PLC)
97	Info, obstacle detected
98	Info, vandalism detected
99	Info, high current in the motor

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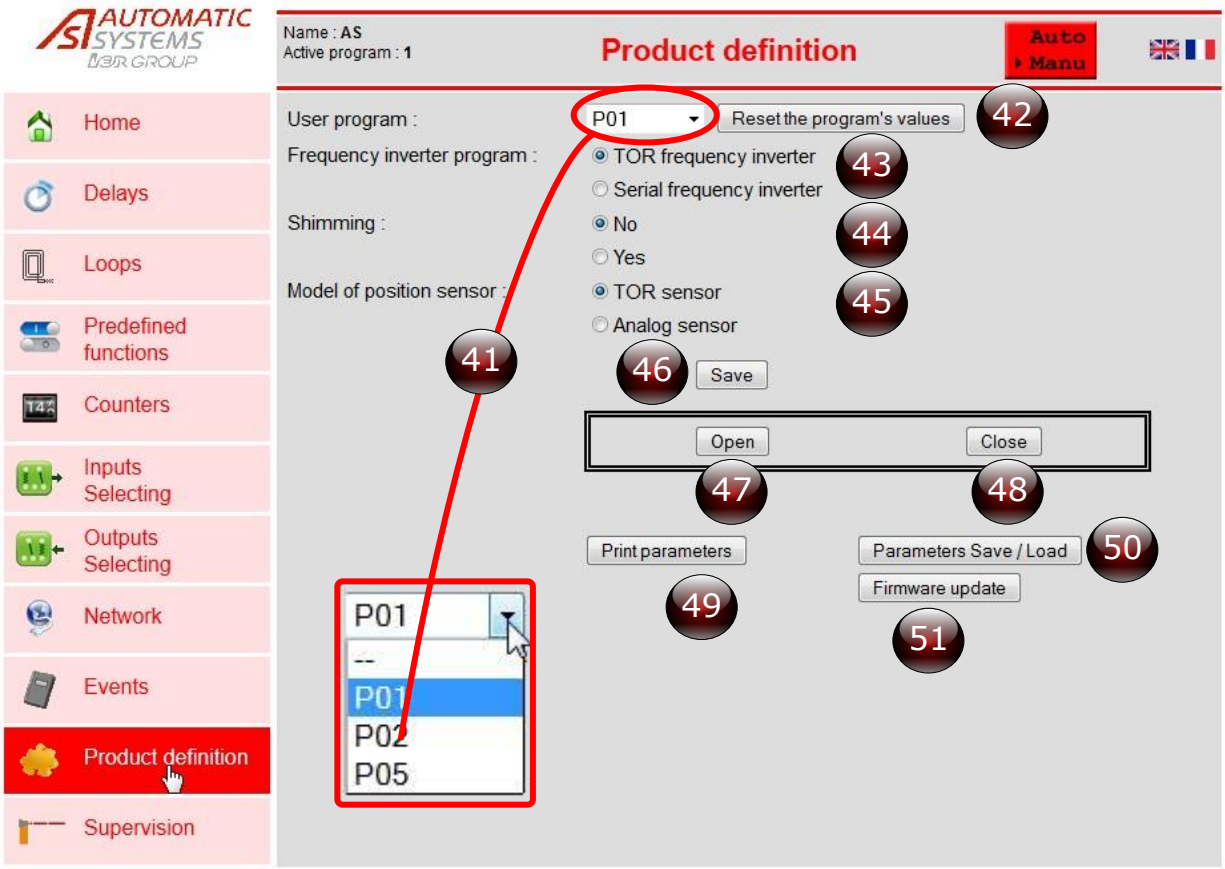
8.11 Product definition screen

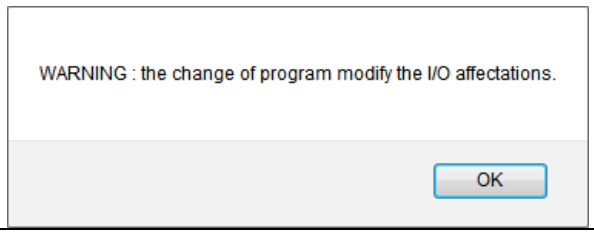


Dropdown list with all the programs available.

Expand the list to select a program.

This program shall only be modified with full knowledge by a qualified technician.

41



42	Reset the program's values	Button used to delete all the modifications/configurations made and to reload the default configuration of the active program.
43	Frequency inverter program	See section 8.11.1 .
44	Shimming	Function used to enable or disable the shimming of the VFD against the switch. Only available for a motor with no brake and with a VFD controlled over a serial link.

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		Shimming = If there is a forced opening or closure attempt on the barrier, the VFD increases the torque to maintain the barrier in position.
45	Model of position sensor	See section 0.
46	Save	Button used to save the new values.
47	Open	Button used to send an opening command to the barrier.
48	Close	Button used to send a closure command to the barrier.
49	Print parameters	Button used to print program parameters (⇨ example below).
		Can be useful to keep track of the parameters you modify.
50	Parameters Save/Load	Button used to open the Parameters running screen (⇨ section 8.12).
51	Firmware update	Button used to open the Program screen (⇨ section 8.13).

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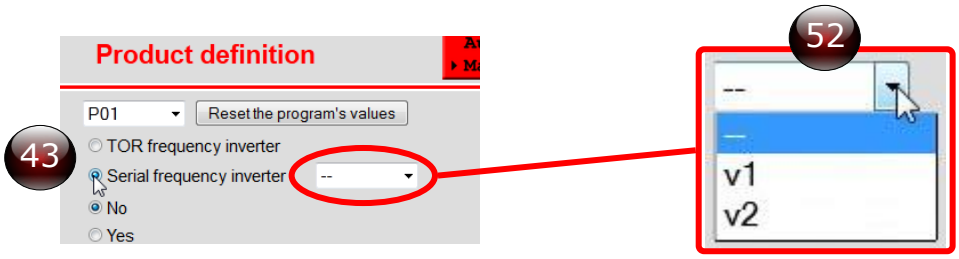
8.11.1 Frequency inverter program



43 Frequency inverter program	List of choices to select the type of control for the VFD: TOR or serial (⇨ section 8.11.1). When the VFD is in TOR mode, it is controlled by outputs ***O***, ***F*** and ***PV***. When the VFD is in serial mode (Modbus), it is controlled through connector ***XD3***. Option ***Serial frequency inverter*** automatically switches the position sensor type to ***Analog sensor***. If option ***Serial frequency inverter*** is selected, a program must be selected from the dropdown list 52. The program used to control the VFD in TOR mode is factory configured based on the type of barrier and accessories used.
52 Program selection dropdown list	List used to select the program based on the type of barrier and the options installed. When in doubt, contact Automatic Systems.

Click on Save to confirm your program selection.

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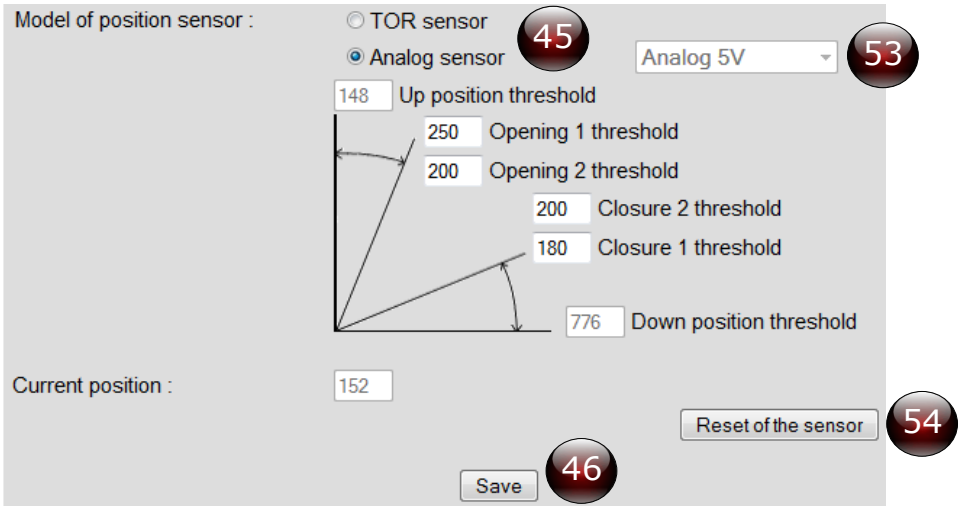
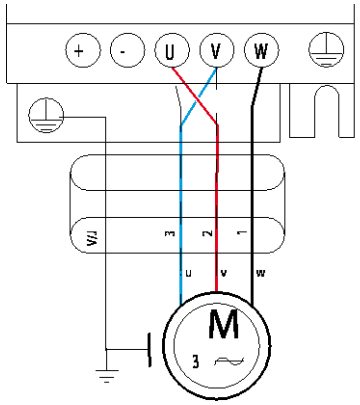
8.11.2 Model of position sensor



45 Model of position sensor	List of choices used to select the type of sensor: TOR = mechanical LS or inductive sensor; or analog sensor (⇨ section 8.11.1). Sensor model automatically switches to analog when option ***Serial frequency inverter*** is selected.
46 Save	Button used to save the new values.
53	Field used to display the status or type of the analog sensor used.
54 Reset of the sensor	Once ***Analog sensor*** is selected and button **Save** is pushed, button 54 appears. If the barrier is ready, start the initialization: Sensor's initialisation in progress... Wait. Opening in progress.... **The barrier must open** *(at low speed).* If the barrier closes, cut the power and reverse the two phases of the motor: 

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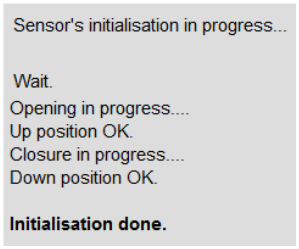
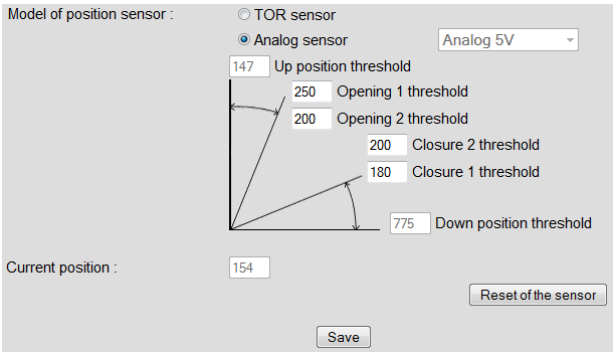
If the barrier is already open, it should reach its high position after a few seconds. Then, it closes *(at low speed)* to reach its low position.

When the following message appears, you will know the initialization is done:



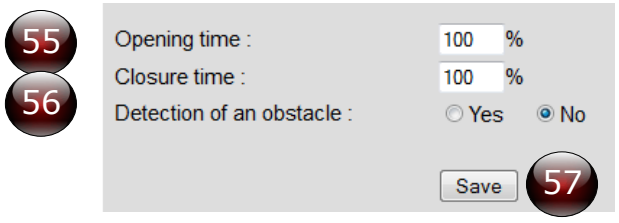
Values are then displayed in the fields:



Threshold fields are automatically filled. Thresholds 1 are based on the VFD program. Thresholds 2 are predefined in the user program and can be modified. ***Automatic Systems highly suggests that you do not modify these parameters without consulting its technical service first.***

8.11.3 Opening time and closure time configuration

This mode is only available with a VFD controlled over a serial link.



55	Opening time	Field used to set the opening time. The value **MUST BE BETWEEN 50% AND 100%.**
	Closure time	Field used to set the closure time. The value **MUST BE BETWEEN *50% AND 100%.***
56	Detection of an obstacle	Selection fields used to define whether the barrier should open or not when an obstacle is detected during a closure cycle.
57	Save	Button used to save the time values modified. Option ***Serial frequency inverter*** automatically switches the position sensor type to ***Analog sensor***.

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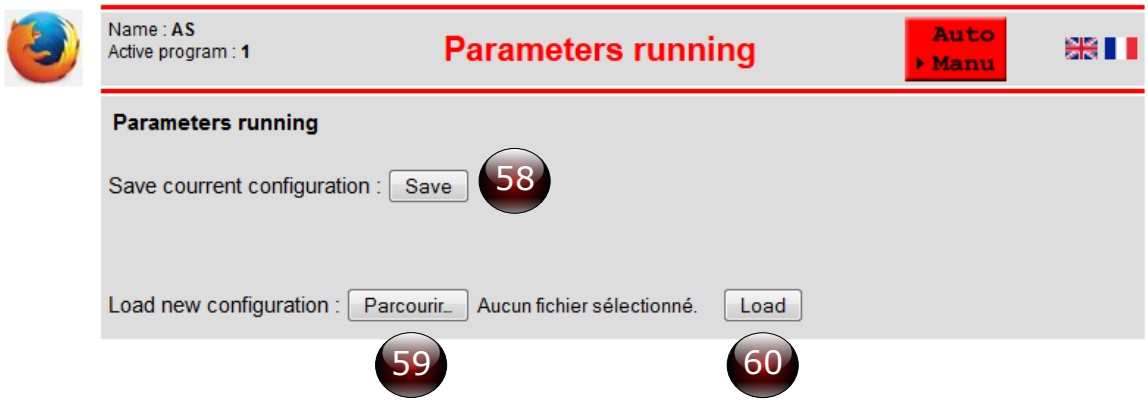
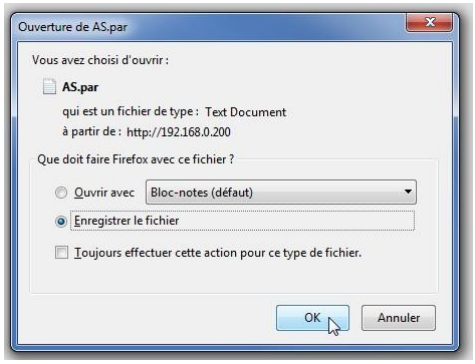
8.12 Parameters running screen

This screen is used to save or load a configuration.



58	Save	Button used to save the configuration data of the board in ***.par*** format. As displayed in :  As displayed in : The file saved can be open and viewed directly or the ***.par*** file generated can be saved in the location of your choice.
59	Parcourir	Button used to browse through the computer to select an existing ***.par*** file.
60	Load	Button used to load the data in the selected configuration file.

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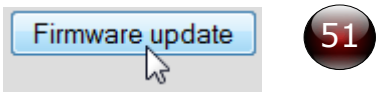
8.13 Program screen (firmware update)



51	Firmware update	Button used to open the Program screen to update the board's firmware:

Affichage dans le navigateur

61	Parcourir	Button used to browse through the computer to select the ***.bin*** file required to perform the update.
62	Upload	Button used to load the content of the ***.bin*** file in the board's memory. It takes about 3 minutes to install a new program. Once the installation is done, restart the board and the browser.

Once the new software is loaded and the board restarted, it is important to click on button Reset the program's values to confirm the new parameters.

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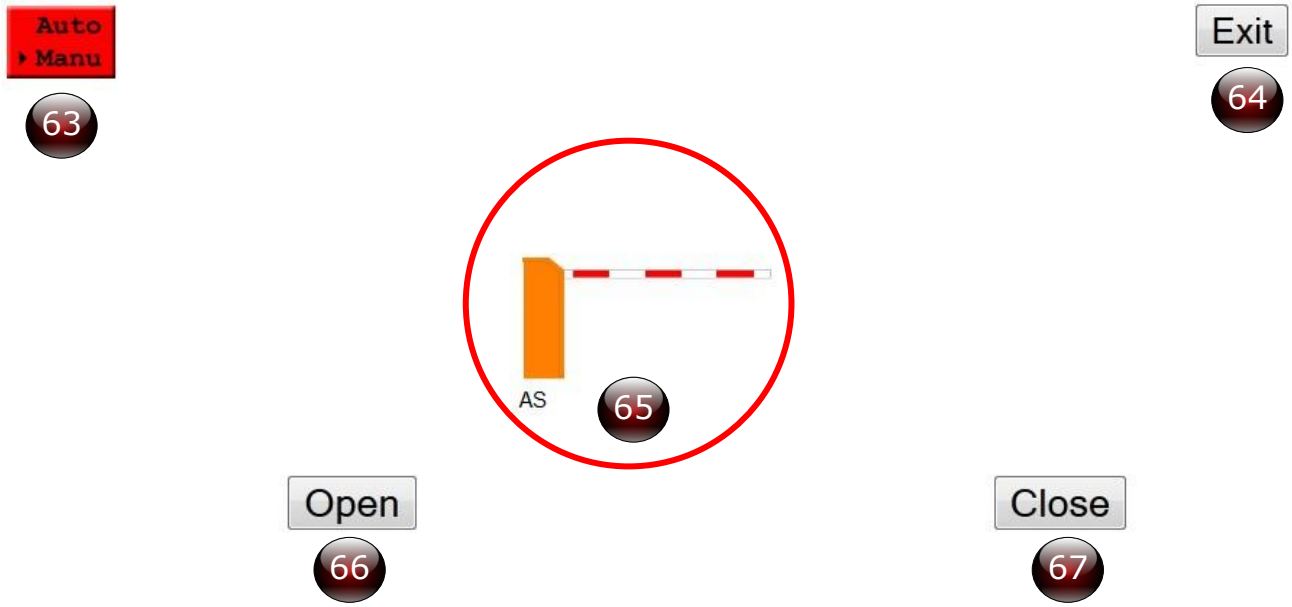
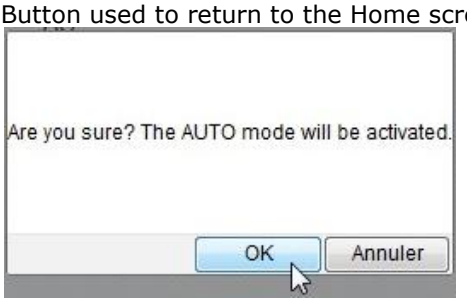
8.14 Supervision screen



63	Auto / Manu	***Auto*** = Operation in accordance with the user program. ***Manu*** = Operation via the web interface (user program safeties are still active).
64	Exit	Button used to return to the Home screen and switch to ***Auto*** mode.  If you want to go back to the previous screen, click on the return arrow of your browser: .
65		Image of the status of the barrier.
66	Open	Button used to send an opening command to the barrier.
67	Close	Button used to send a closure command to the barrier.

If ***Manu*** mode is active when you exit the webpage, board PLA1300 remains in this mode and LED ***OK*** blinks.
Press the ***PB*** to switch back to ***Auto*** mode or cut power to the board.

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PROBLEMS AND TROUBLESHOOTING

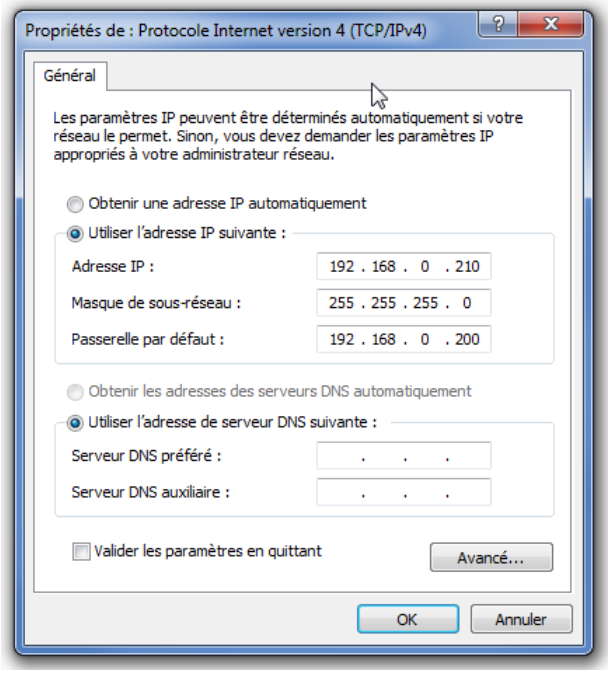
8.15 Changing the battery of board PLA1301

- Get a new battery: 3 V, BR1225 (CR1225).
- Cut the power.
- Remove the old battery.
- Install the new battery.
- Put the power back on.

8.16 Updating the applicative program

Refer to the specific manual for more information, or when you have doubts about the procedure.

8.16.1 Configuring the network parameters of the PC connected


Propriétés de : Protocole Internet version 4 (TCP/IPv4)
Général
Les paramètres IP peuvent être déterminés automatiquement si votre réseau le permet. Sinon, vous devez demander les paramètres IP appropriés à votre administrateur réseau.
Obtenir une adresse IP automatiquement
Utiliser l'adresse IP suivante :
Adresse IP : 192 . 168 . 0 . 210
Masque de sous-réseau : 255 . 255 . 255 . 0
Passerelle par défaut : 192 . 168 . 0 . 200
Obtenir les adresses des serveurs DNS automatiquement
Utiliser l'adresse de serveur DNS suivante :
Serveur DNS préféré :
Serveur DNS auxiliaire :
Valider les paramètres en quittant
Avancé...
OK
Annuler

8.16.2 Updating the program

Open your Internet browser.

In the address bar, type: http:192.168.0.200.

The ***Home*** screen appears.

In the menu on the left, click on

.

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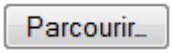
To access the Program screen directly, type the following address in the browser: http:192.168.0.200/program.

Click on 

to select the appropriate file (***Vx-x.x.bin***) in the computer.

Click on

and wait approximately 3 minutes, until message ***Upload done*** is displayed.

Restart the board and the Internet browser.

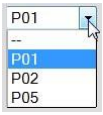
In the address bar, type http:192.168.0.200.

The ***Home*** screen appears.

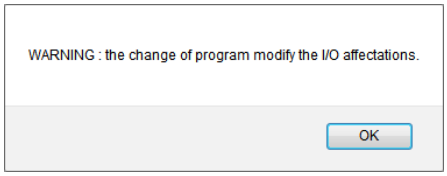
In the menu on the left, click on

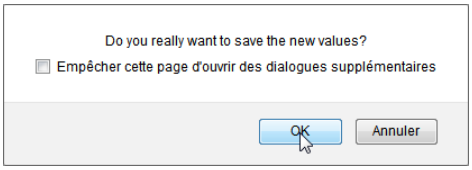
.

The ***Product definition*** screen appears.

Expand the User program list. 

Select the program to be used, even if it already selected.

Click on OK. 

Click on OK to confirm. 

Click on button

(red); it will turn green

.

Write the release of the new program installed on the transformer.

8.17 Temporary return to factory IP address

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LEDs ***I7 and I10*** light up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .
- Press the ***PB*** many times until LED ***I11*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).

The board resets and the IP address becomes **192.168.0.200**, until the next board restart.

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8.18 Permanent return to factory IP address

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LEDs ***I7 and I10*** light up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .
- Press the ***PB*** many times until LED ***I12*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).

The board resets and the IP address becomes **192.168.0.200**.

8.19 Returning to Auto mode (after making a modification in the web interface)

When the parameter modification mode is enabled in the web interface, the board automatically switches to ***Manu*** mode, except when the modifications are made to delays, counters, networks and events.

When ***Manu*** mode is enabled in the web interface, LED ***OK*** blinks.

To switch back to ***Auto*** mode:

- Click on Auto Manu in the web interface. The button turns green Auto Manu.

  Or
- If the network cable is not connected, press on the board's push-button once.

  Or
- Cut power to the board and then power the board again.

8.20 Initializing the analog angle position sensor

To initialize the sensor, the arm must be installed.

- Cut power to the board.
- Press and hold the ***PB*** and restart the board.
- All HMI LEDs light up. Release the ***PB***. (Do not hold it for more than 3 seconds.)
- LED ***OK*** turns off .
- Press the ***PB*** many times until LED ***I7*** lights up.
- To confirm, press the ***PB*** until all HMI LEDs light up (± 3 seconds).
- LED ***OK*** blinks .
- Press and hold the ***PB*** for more than 3 seconds to launch the initialization of the analog sensor.

The barrier will start to move to define its low and high positions.

- LED ***OK*** blinks rapidly .
- When the initialization is done, the board automatically switches back to ***Auto*** mode.

WARNING: If the barrier type is **AVR**, it will open.

The program of board PLA1300 will become active when the next action occurs (opening/closure command).

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8.21 Auto and Manu modes

8.21.1 From the web interface

If

- LED ***OK*** blinks.
- Manual commands can no longer be sent through inputs ***I6*** and ***I7*** of board PLA1300 (if manual mode is on I5).
- Loop, CR and other actions are also disabled.
- The barrier is activated through screens ***Product definition*** or ***Supervision.***

User program safeties are still active.

If

- LED ***OK*** is steady .
- The barrier cannot be activated via the PC. The barrier is controlled according to the configuration set for the inputs of board PLA1300.

8.21.2 From user program P01*

**: Input I5 is assigned differently in P02, P05 and P07.*

If input Auto/Manu is in ***Manu*** mode (24 V shunt on input I5):

- Opening via input ***I6*** (or I10).
- Closure via input ***I7*** (or I11).
- Loop and CR actions are disabled.
- Locked open and locked closed contacts are functional.
- Closure time delay when no passage is detected is disabled.

If input Auto/Manu is in ***Auto*** mode (input I5 open):

- Inputs ***I6*** and ***I7*** are disabled.
- Opening: Input ***I9*** CR (or I13 CR2 + VAL2), opening loop or ***I10***.
- Reclosure: automatic, after time delay T1, if no passage, time delay T2 after passage, immediate after ***I10*** is open, after the opening loop is open.
- Loop under arm and input ***I8*** are used for safety and reclosure.
- Input ***I4*** is only used for safety.
- Locked open and locked closed contacts are functional.

8.21.3 Notes on the use of safety loops and a reader:

Only applies to program P01.

If a pulse is sent to 1 safety loop under arm (vehicle passage):

- The barrier closes after the passage of the vehicle and after time delay ***T2*** (if there are no other safety contacts activated).

If a loop is configured in open mode:

- The barrier opens and remains open as long a detection is active.
- The barrier recloses immediately if a vehicle is no longer detected.

If the barrier opens through the contact of the reader (***I9***) and there is no vehicle passage (no pulse sent to the safety loop):

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- The barrier closes after time delay T1 has elapsed (except if locked open or photocell contacts are active).

8.21.4 New functionality in program P02

Reclosure/safety loop management:

In general, with program ***P02***, opening and closure commands are manual (on ***I6*** and ***I7)***. This will always be the case if input ***I11*** is open (manual mode).

Input ***I5*** is dedicated to swing-off detection.

- When input ***I11*** is forced to 24 V, reclosure can occur:

  1. After passage on safety loop 1 or via a pulse on one of the safety inputs, i.e. ***I4*** or ***I8***.
  2. Via a no passage time delay.
  3. Manually through a pulse sent to ***I7*** or locked closed on ***I12***.

Note that **opening loops or validation loops cannot be used with program *P02***.

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9 SIMPLIFIED MODBUS

Modbus			
Modbus status		Modbus command	
M49,0	Closed	M51,0	Board restart
M49,1	Open	M51,1	
M49,2	Locked closed	M51,2	Reader A
M49,3	Locked open	M51,3	Reader B
M49,4	Stop	M51,4	Reader B validation
M49,5	Manu mode PLC	M51,5	
M49,6	Manu mode web	M51,6	Locked closed
M49,7	Sensor initializing	M51,7	Locked open
M49,8	Barrier OK	M51,8	Stop (no shimming)
M49,9	Closure time elapsed	M51,9	Opening loop cancelled
M49,10	Opening time elapsed	M51,10	*Counting C1*
M49,11	Obstacle (up to high)	M51,11	*Counting down C1*
M49,12	Vandalism (CO or CC)	M51,12	*Analog sensor reset*
M49,13	Swing-off	M51,13	Analog sensor initialization
M49,14	*C1 threshold reached*	M51,14	Parameter recording
M49,15		M51,15	Board restart

Note: *Text in italics applies to program 05.*

For more information on Modbus, refer to the specific user manual.

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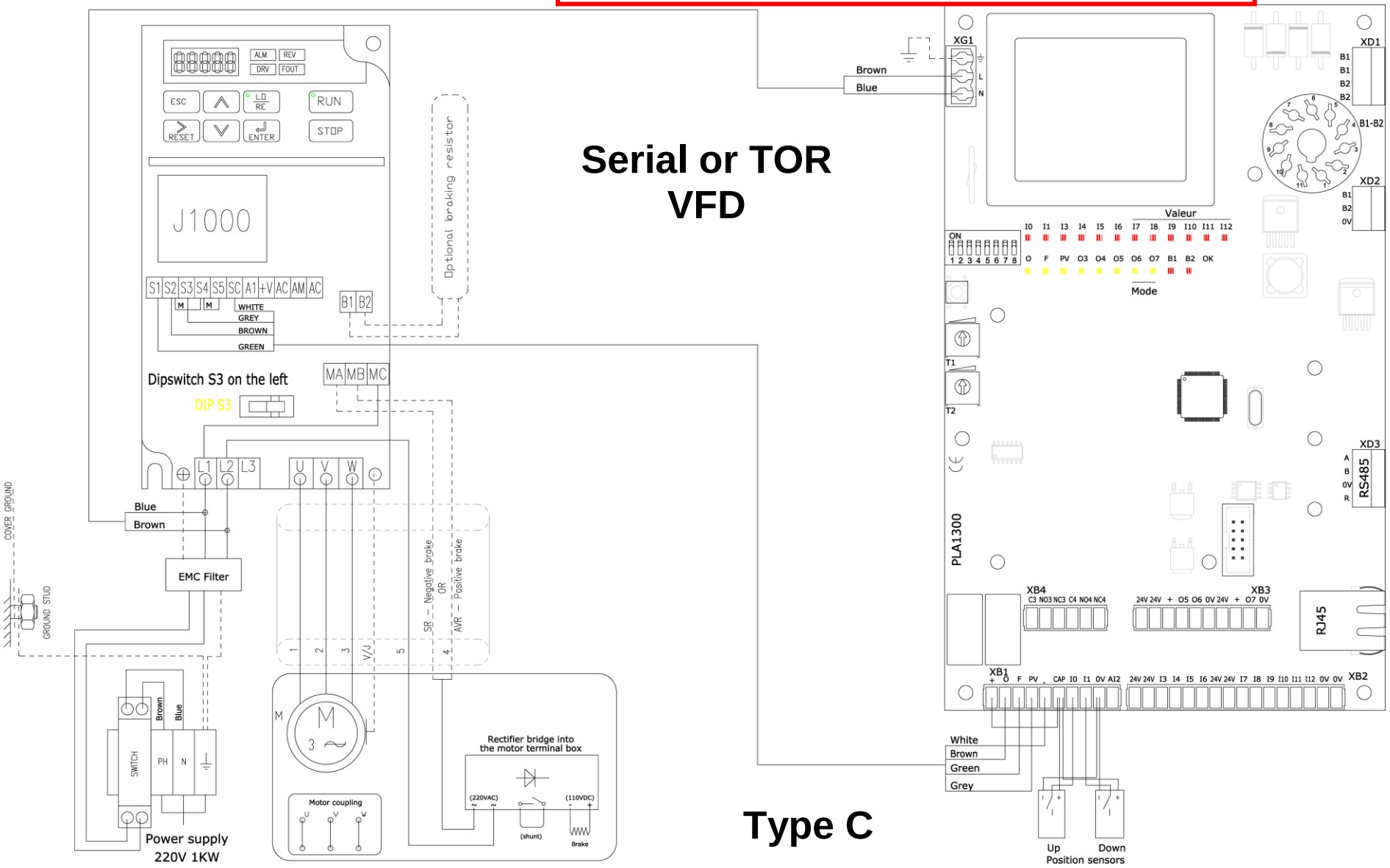
10 DIAGRAMS (EXAMPLES)

The diagrams shown here are provided for information purposes only.

Refer to diagrams provided with the equipment.

Example of diagram for program 01



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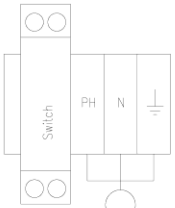
Example of diagram for program 01

MAIN CONNECTIONS

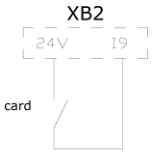
POWER SUPPLY



Power supply
mono 220V 1KW

10A/300mA differential circuit breaker

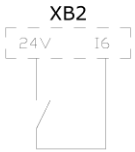
OPEN (AUTO mode)*



Push button, card reader, ...

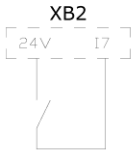
*In AUTO mode, the closing movement is done after delay T1 or T2

OPEN (MANUAL mode)*

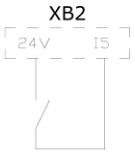


*In MANUAL mode, the closing movement must be given on input I7.

CLOSE (MANUAL mode)

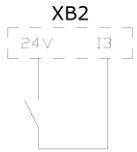


AUTO / MANU

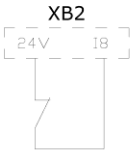


I5 = 0 : AUTO
I5 = 1 : MANU

SAFETY (cell, ultrasonic sensor, ...)



If safety with NO contact



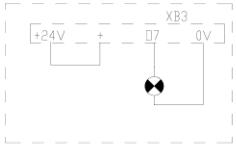
If safety with NC contact

OPTIONAL CONNECTIONS

OPTION A
Flashing light(s)

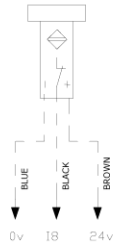
Normally, the lights blink during the movement (see SW6 & SW7)

For rotating light, SW5 must be set on ON

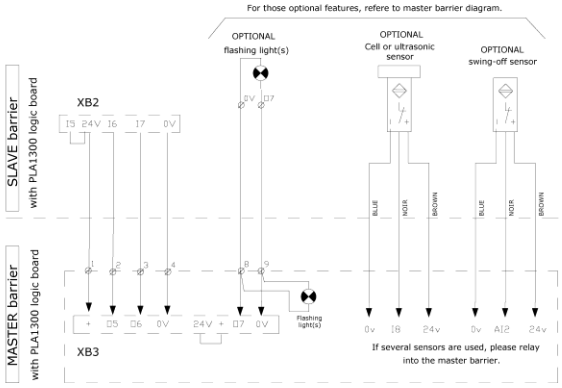


The sum of the currents of all the accessories connected does not exceed 1,5A.

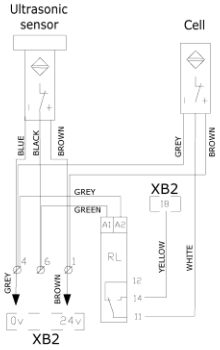
OPTION B
Ultrasonic sensor



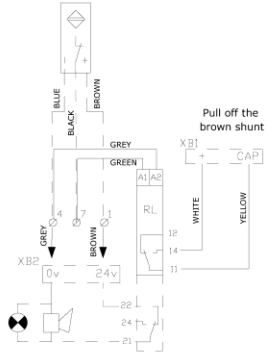
OPTION C
Master / Slave wiring


For those optional features, refere to master barrier diagram.
OPTIONAL flashing light(s)
OPTIONAL Cell or ultrasonic sensor
OPTIONAL swing-off sensor
SLAVE barrier with PLA1300 logic board
MASTER barrier with PLA1300 logic board
XB2
XB3
Flashing light(s)
If several sensors are used, please relay into the master barrier.

OPTION D
Safety with ultrasonic sensor + cell



OPTION E
Swing-off sensor with STOP of all movements



Optionnal light or ringing : replace the RL relay with a 2 contacts relay

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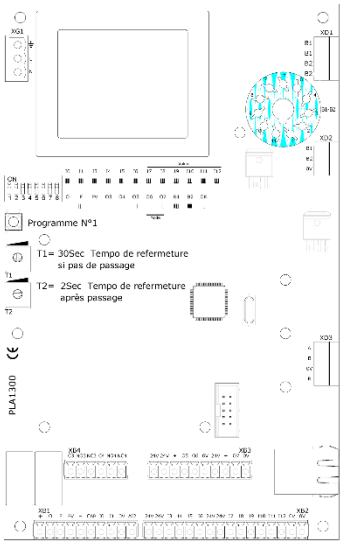
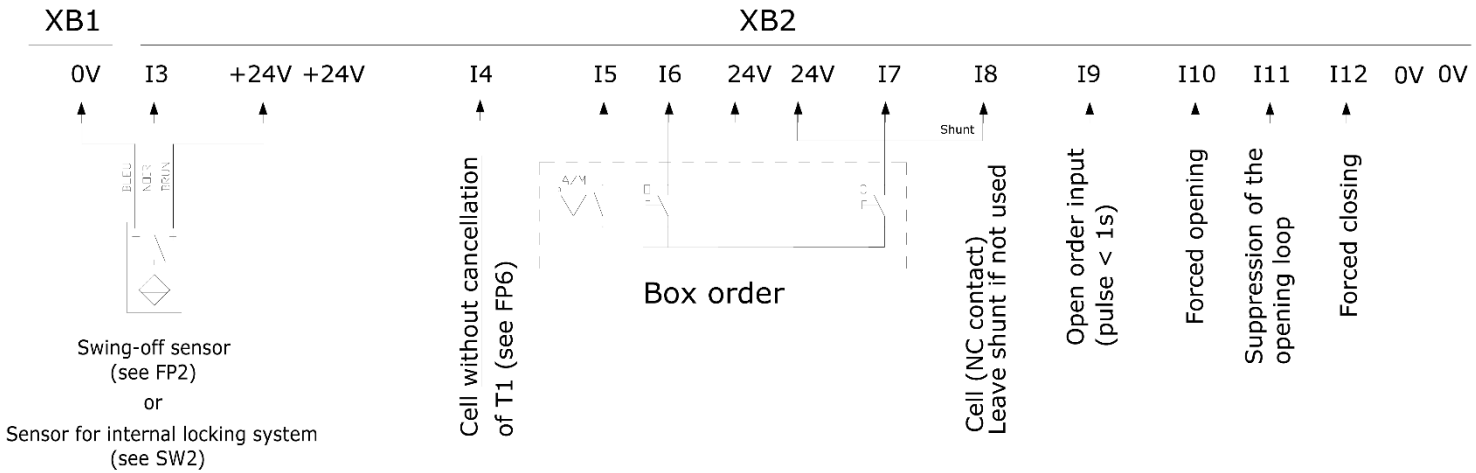
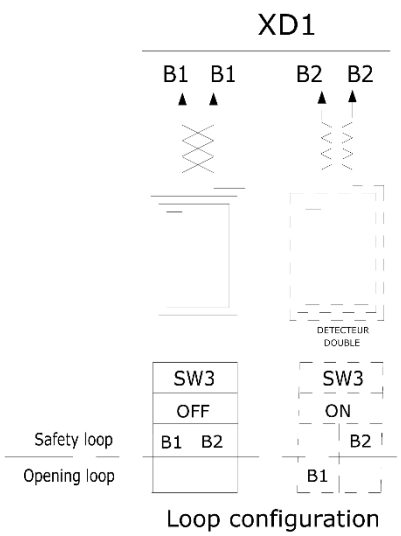
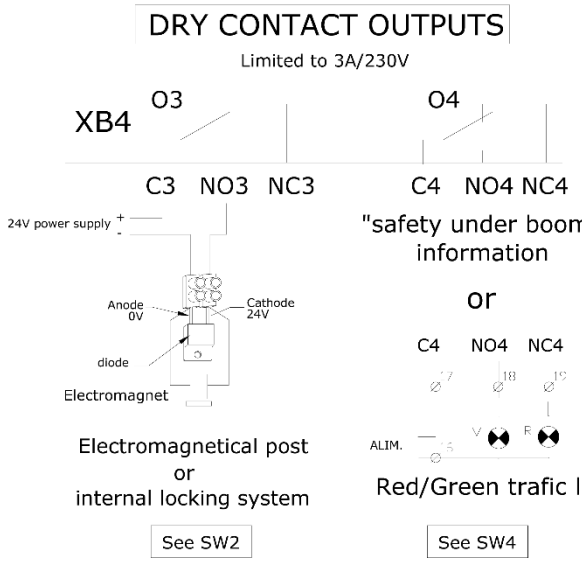
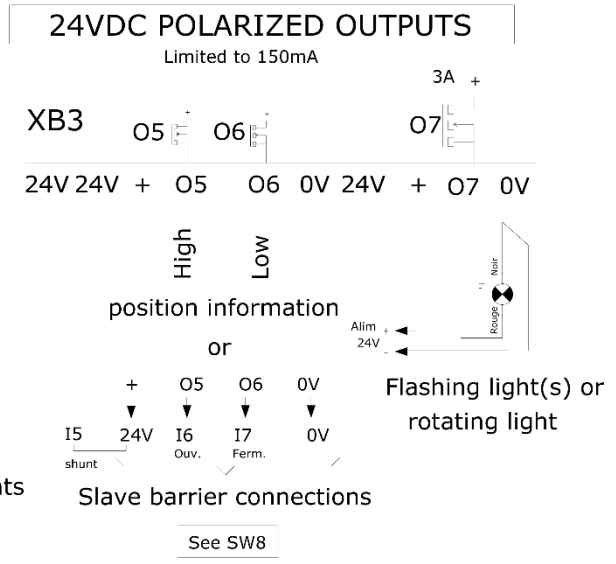
Example of diagram for program 01




XB1
XB2
0V I3 +24V +24V I4 I5 I6 24V 24V I7 I8 I9 I10 I11 I12 0V 0V
Swing-off sensor (see FP2)
or
Sensor for internal locking system (see SW2)
Cell without cancellation of T1 (see FP6)
Box order
Shunt
Cell (NC contact) Leave shunt if not used
Open order input (pulse < 1s)
Forced opening
Suppression of the opening loop
Forced closing







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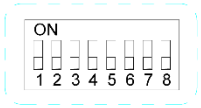
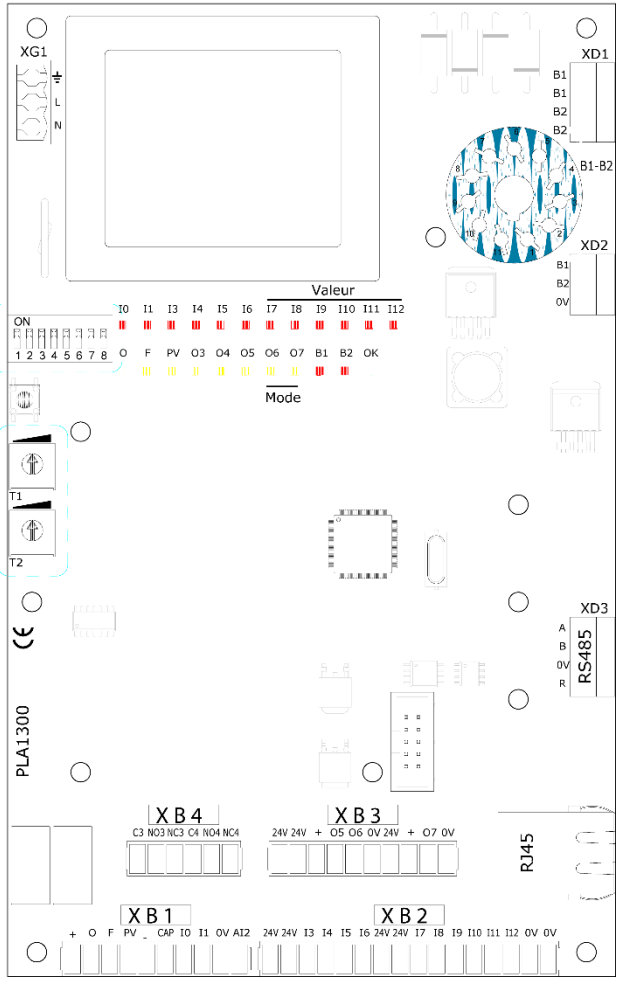
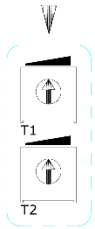
Settings with direct access

Example of diagram for program 01

DIPSWITCHES		
SW1	ON	Closing auto-maintained
	OFF	Closing "step by step"
SW2	ON	I3 input dedicated to internal locking system sensor
	OFF	I3 input dedicated to swing-off sensor (seer FP2)
SW3	ON	B1 loop in automatic opening and B2 loop in safety
	OFF	B1 & B2 loops in safety
SW4	ON	O4 output dedicated to red/green trafic light
	OFF	O4 output is active if one of the safety is active
SW5	ON	O7 output dedicated to a continuous light (rotating light for exemple)
	OFF	O7 output dedicated to a flashing light
SW6	ON	O7 output is active during movement and when the barrier is closed
	OFF	O7 output is actiive during the movement and inactive when the barrier is closed
SW7	ON	O7 output is active during movement and when the barrier is opened
	OFF	O7 output is actiive during the movement and inactive when the barrier is opened
SW8	ON	Orders for slaved barrier : O5 -> open order / O6 -> close order
	OFF	Output O5 : high position information / Output O6 : low position information







Temporisations réglables par potentiomètres			
T1	30s	Default values	Reclosure delay without vehicle passage on the safety
T2	2s		Reclosure delay with vehicle passage on the safety

Note : turn the potentiometer clockwise to increase the value of the delay.

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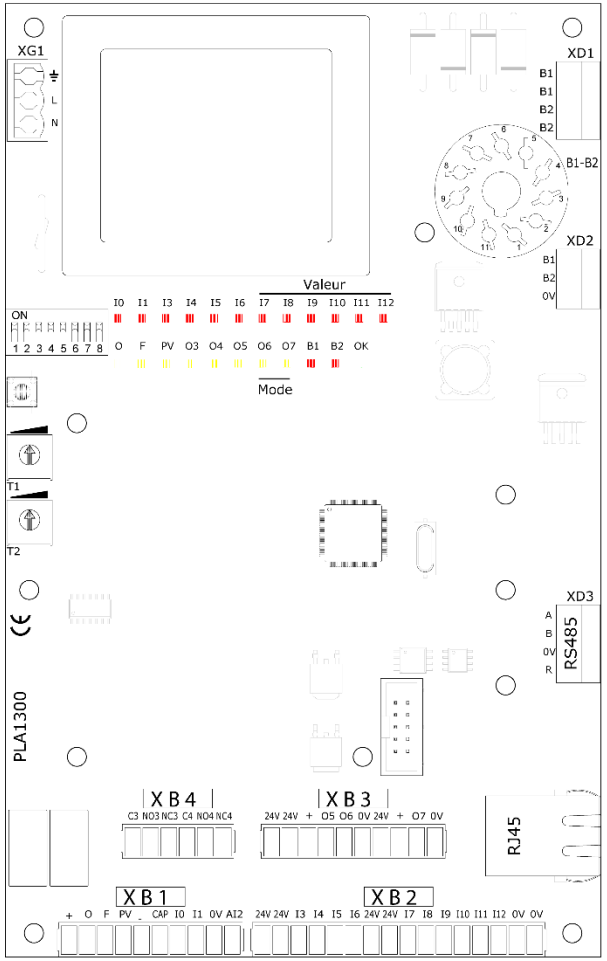
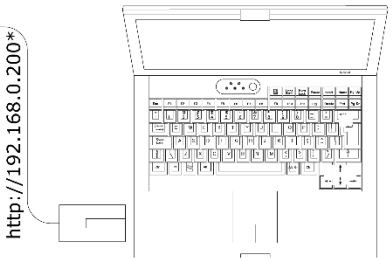
Settings requiring a connection to a computer

Example of diagram for program 01





* : logic board default IP adress

Netware paramaters for connected PC :

IP adress :	192.168.0.210
Subnet mask :	255.255.255.0
Gateway :	192.168.0.200

Predefined functions

FP1	1	T1 delay is active
	0	T1 delay is not active
FP2	1	If SW2=1, all movements are stop if I3 input is active
	0	I3 activation makes nothing
FP3	1	Opening "step by step"
	0	Opening auto-maintained
FP4	1	If safety during closing, the barrier re-opens
	0	If safety during closing, the barrier stops
FP5	1	I9 input must be associated to a "validation 2" (loop for ex.)
	0	I9 input doesn't need validation
FP6	1	NC contact for I4 input
	0	NO contact for I4 input
FP7	1	PLA1300 : input for remote controlled switch to be defined. PLA1301 : RC switch in I15
	0	No remote controlled switch
FP8	1	Priority for forced closed
	0	Priority for forced opened
FP15	1	SW2=1 -> internal locking system : high & low positions are locked if no power supply
	0	SW2=1 -> internal locking system : high & low positions are unlocked if no power supply
FP16	1	SW2=1 -> internal locking system : low position is unlocked / high position is locked if no power sup.
	0	SW2=1 -> internal locking system : high & low positions are unlocked if no power supply

Delays

T4	0s	Default values	Timing before opening movement
T5	0s		Timing before closing movement
T6	0s		Timing after movement
T7	0.5s		O7 output is inactive "x" sec (if SW5=0). Blinking frequency
T8	0.5s		O7 output is active "x" sec (if SW5=0). Blinking frequency

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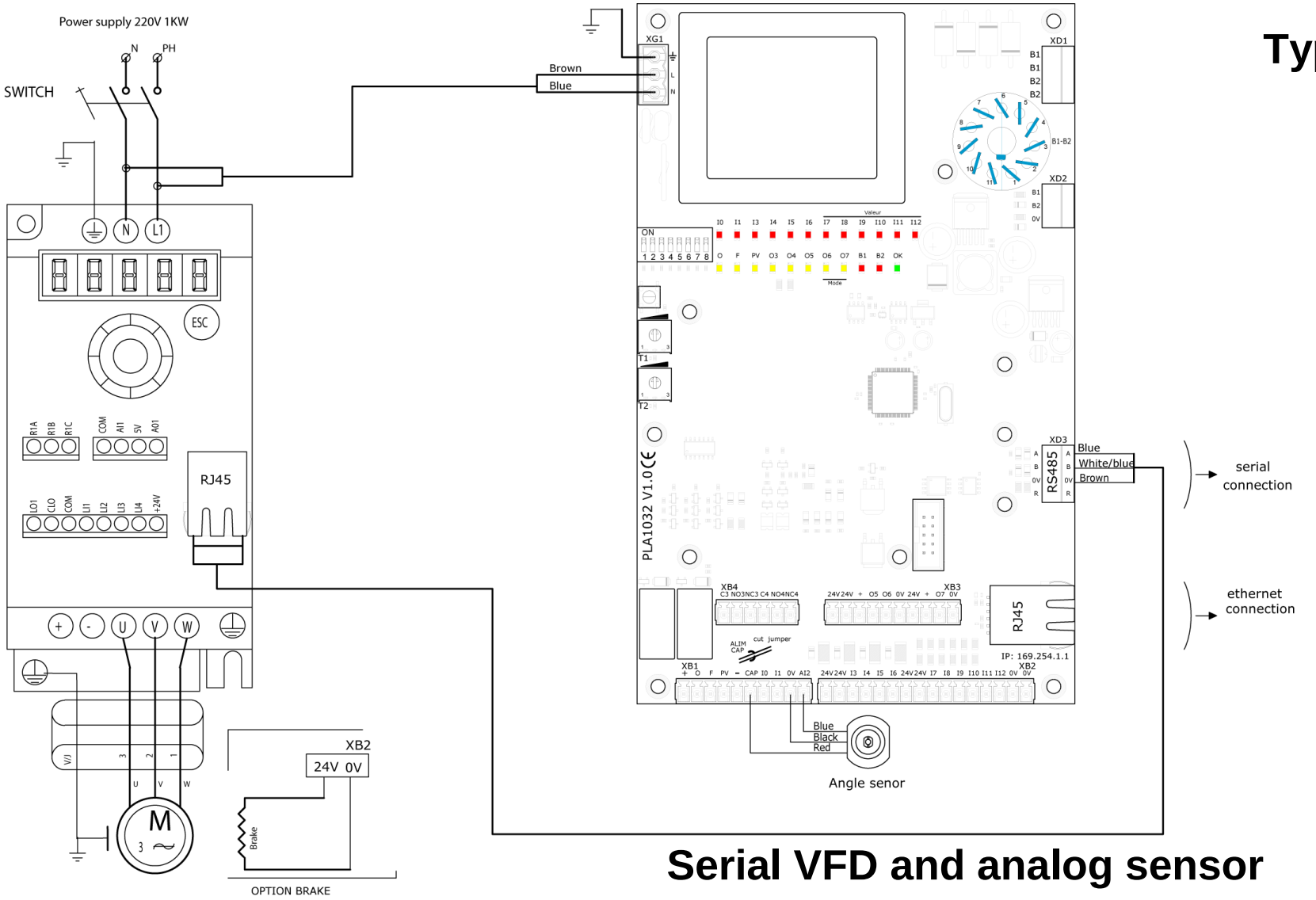
Type D



Serial VFD and analog sensor

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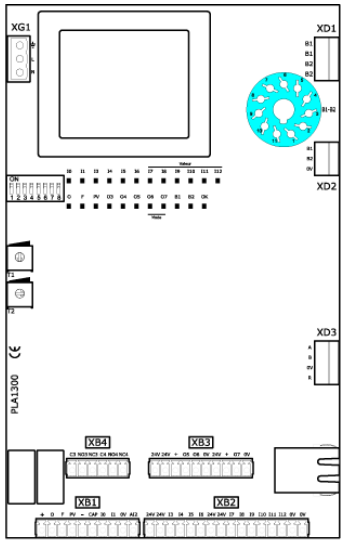
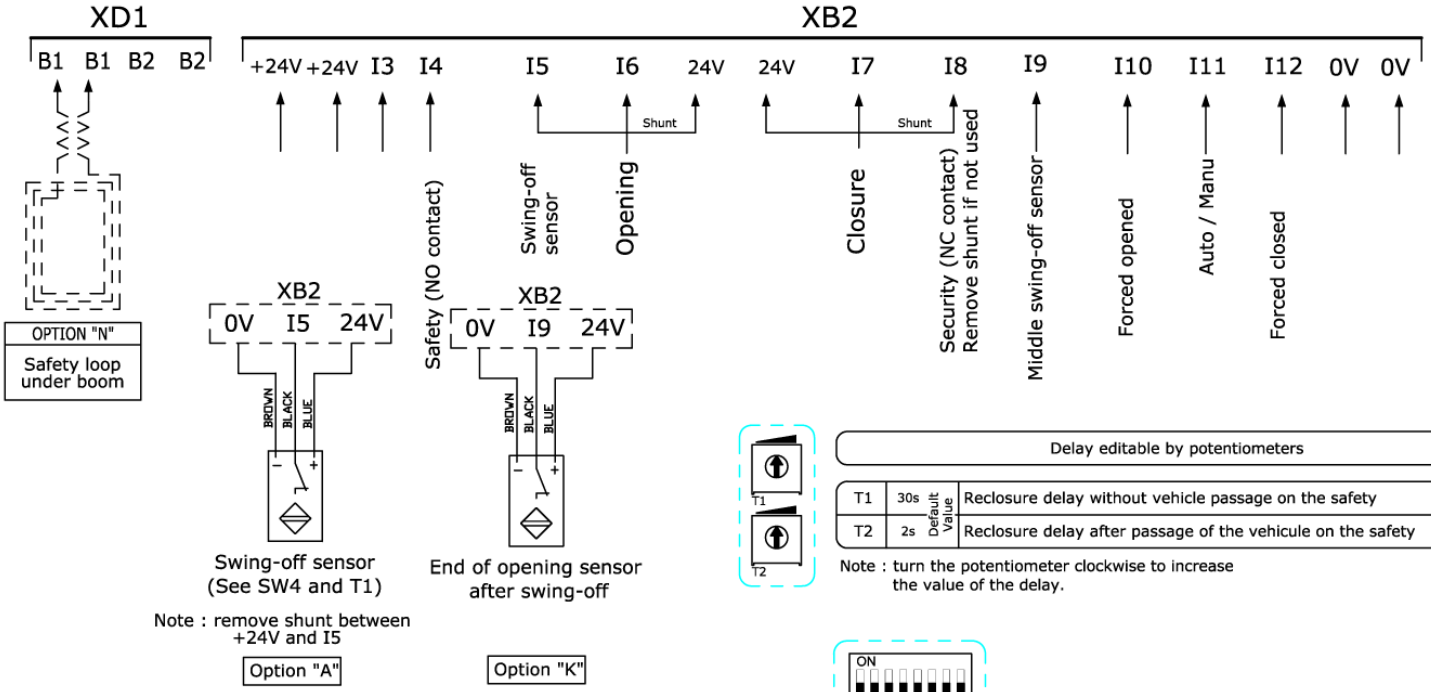
Example of diagram for program 02 (TollPlus)





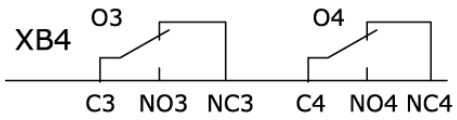
Delay editable by potentiometers

T1	30s	Default Value	Reclosure delay without vehicle passage on the safety
T2	2s		Reclosure delay after passage of the vehicule on the safety

Note : turn the potentiometer clockwise to increase the value of the delay.

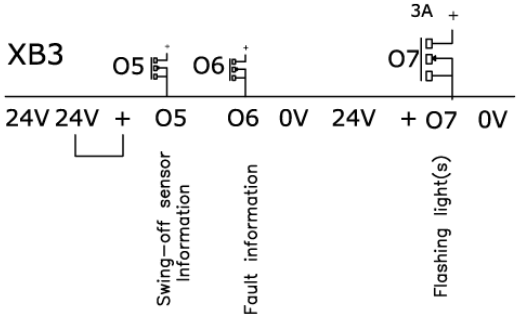
DRY CONTACT OUTPUTS

Limited to 3A/230V



24VDC POLARIZED OUTPUTS

Limited to 150mA



Dipswitches

SW1	ON	Closing auto-maintained
	OFF	Closing "step by step"
SW2	ON	Open order NC at I6 (please add a shunt between I7 and 24V)
	OFF	Open order NO at I6
SW3	ON	Output O6 give an information if security is active (Inputs I4, I8 and loop B1)
	OFF	Output O6 give a "fault" information
SW4	ON	The information given by the swing-off sensor at I5 doesn't open the barrier
	OFF	The information given by the swing-off sensor at I5 opens the barrier
SW5	ON	Reclosing at rehinging after new cycle
	OFF	Reclosing at rehinging (if order to close continuous) (if I7 or I12 actived)
SW6	ON	The O7 output is dedicated to a continuous light (revolving light for example)
	OFF	The O7 output is dedicated to a flashing lights
SW7	ON	The O7 output is active during the movement and when the barrier is opened
	OFF	The O7 output is not active when the barrier is opened
SW8	ON	The O7 output is active during the movement and when the barrier closed
	OFF	The O7 output is not active when the barrier closed

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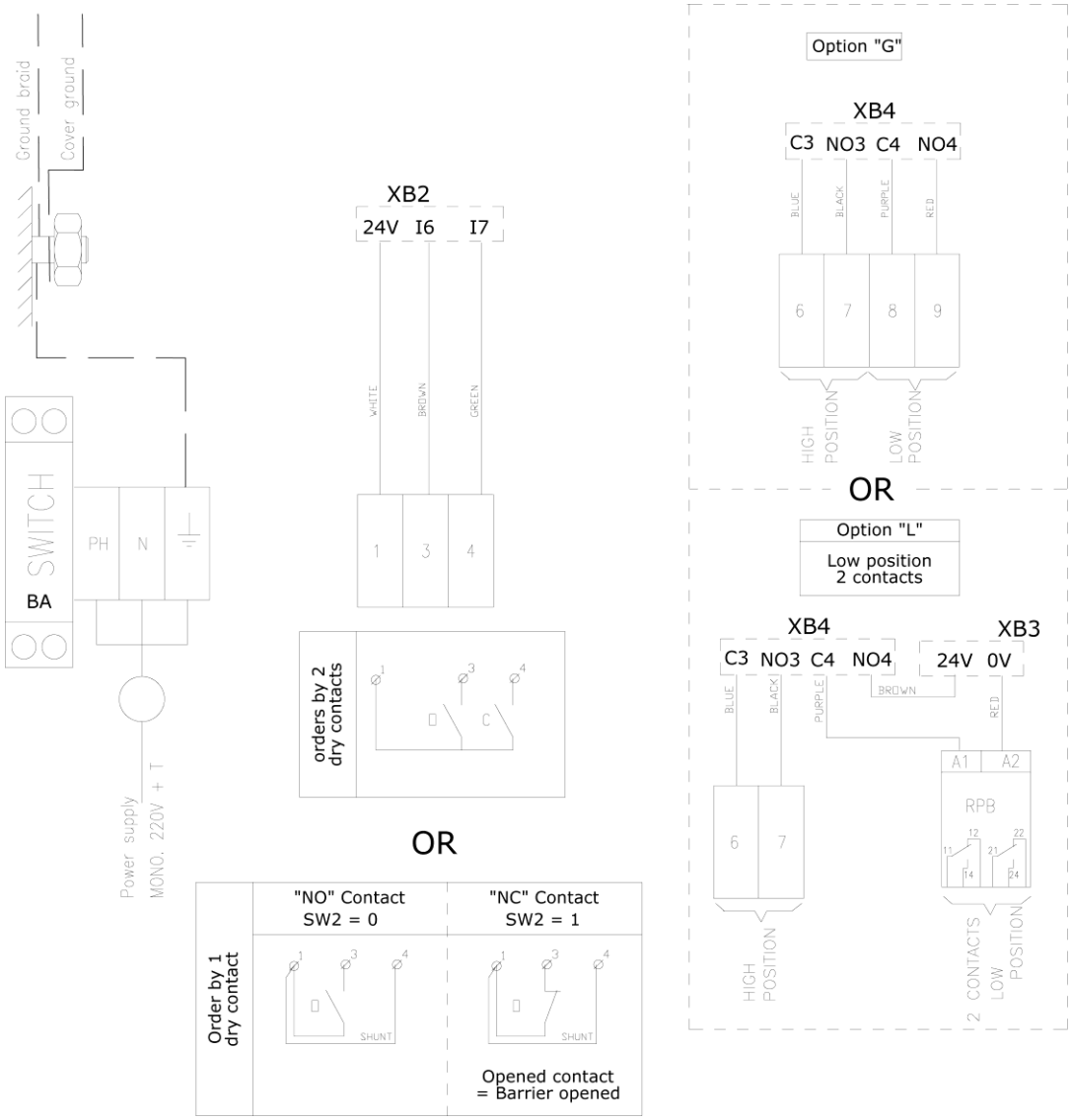
Example of diagram for program 02 (TollPlus)



OPTIONS	
A	Arm swing-off sensor
B	Arm swing-off signal by dry contact (induce option A)
C	Ultrasonic sensor or cell
D	Terminal blocks for Traffic light
E	Switches 2 or 3 positions
F	Fault signal (barrier OK) see SW3
G	Position informations (high and low)
H	Lights on boom (maxi consumption: 1A)
J	Remote stop
K	End opening sensor after swing-off
L	Low position information 2 contacts
M	2 switch: interior and on housing
N	Totaling counter

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